TEXTILE TECHNOLOGY DIGEST

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Abstracts

(An explanation of the classification used in the Digest was published in the January (1949) issue (Vol. 6, No. 1) on the page facing the Index to Authors)

FIBERS A

Identification of textile fibers. Norris Willatt. *Can. Textile J. 66*, 54, 56 (Feb. 18, 1949).

This is an interpretation and practical commentary on the Textile Institute's handbook entitled "The Identification of Textile Materials." (See TTD: *6*, 1).

Natural fibers A 1

Animalization of cellulosic fibers. Domenico Fornelli. *Am. Dyestuff Reptr. 37*, 853-8, 882 (Dec. 27, 1948).

This is a review of the different methods of animalizing cellulosic fibers, based on 99 references, mostly from the patent literature. The dyeing and finishing of animalized fibers is also considered briefly.

Cotton picker. Lee W. Gant. USP 2 462 177, Feb. 22, 1949.

This invention provides a cotton picker with a picker head comprising a casing formed at its forward wall with a guide trough adapted to receive a cotton stalk, the bottom of the trough having a slot extending its full length, and a pair of toothed rotors on each side of the slot. The toothed rotors rotate toward each other and rotary brushes, rotating in the opposite direction and at different speeds from the toothed rotors, are situated behind them. The cotton fibers are caught up from the brushes by suction and deposited in a lint receptacle.

Doffing mechanism for cotton harvesters. Chas. R. Berry. USP 2 462 800, Feb. 22, 1949.

This invention provides for the doffing of the carding cylinder of cotton pickers by a constant blast of air which blows the lint from the cylinder and into a lint receiver. In this manner, cracked seeds and other disadvantages of the revolving-brush type of doffer are eliminated.

COTTON'S INCREASING COMPETITION FROM SYNTHETIC FIBERS AND PAPER, WHAT BREEDERS AND SPINNERS SHOULD BE DOING TOWARDS MEETING IT. Robt. B. Evans. *Bur. of Agricultural & Industrial Chemistry, Dept. of Agriculture.* Sept. 21, 1948. 15 p.

FIBER AND SPINNING PROPERTIES OF COTTON: CORRELATION STUDY OF EFFECT OF VARIETY AND ENVIRONMENT [with list of literature cited]. Henry D. Barker & Otis A. Pope. *U. S. Dept. of Agr. Tech. Bull. 970.* 47 p. Price: 15¢.

STRUCTURE, DETERMINED BY X-RAY, AND STRENGTH OF COTTON FIBER. Earl E. Berkeley, Orville C. Woodyard, H. D. Barker, Thos. Kerr & C. J. King. (*Technical Bull. No. 949*, Apr. 1948). Washington, U. S. Department of Agriculture. 64 p.; Price: 20¢.

The x-ray diffraction technique was used studying the structure of cotton fibers for (1) selecting good spinning cottons not readily identifiable as such by other fiber properties; (2) differentiating unusual varieties or strains or environmental conditions where the usual strength-structure relations may not hold; and (3) measuring relatively rapidly genetic differences affecting tensile strengths. Data obtained are given and the method and techniques used in the study are described. It is concluded that the x-ray measurement is a valuable tool in cotton breeding and general fiber research.

H. M. Norfolk Flax Establishment. Anon. *Fibres, Fabrics & Cordage 15*, 396-7 (Dec. 1948); *16*, 27-30 (Jan. 1949); 54, 56-7 (Feb. 1949).

This series of 3 articles describes the activities of H. M. Norfolk Flax Establishment. Part 1 discusses the history of the Establishment, Part 2 is an account of research, and Part 3 is concerned with production.

STUDIES ON THE MIDDLE LAMELLA OF THE FLAX FIBER. Gösta Lindberg & Paul W. Lange. Stockholm, Royal Swedish Academy of Engineering Sciences. 41 p.

This paper describes the work done in examining the nature of the middle lamella, the substance joining ultimate fibers, of the flax fiber. Coarse flaxes were treated with alkaline solutions and it was demonstrated that most of the properties of the fiber were improved and that yarn breakages,

both in spinning and weaving, decreased considerably. It was found that the tensile strength of a sample treated with an alkaline liquor (0.8% NaOH + 1% Na_2CO_3) at 90°C dropped rapidly in the first few minutes but that further immersion had little or no effect. Further, when the sample was treated with varying concentrations of caustic soda, a sudden loss in strength occurred on immersion in a weak solution, but further concentration had no appreciable effect. These results tended to show that the tensile strength of the intercellular substance depended on at least 2 groups of substances, one of which is decomposed by alkali and the other which is alkali resistant. Further investigations were made on the dissolving of lignin and pectin, swelling of the fiber, and retting by both chemical and microspectrographical means.—*Fibers, Fabrics & Cordage.*

Tensile strength and chemical composition of the middle lamella of the flax fiber. Gösta Lindberg. Laboratory of Almedahl-Dalsjöfors A. B., Dalsjöfors, Sweden. *Experentia 14*, 1476-7 (Dec. 1948); *in English.*

An investigation is reported of the effect on the tensile strength of flax fiber strands by various physical and chemical treatments. Analyses of the fiber for such components as the lignin, pectin, and oxalate-insoluble substances were carried out to correlate presence or absence of these components with the tensile strength.

THE JUTE INDUSTRY IN GERMANY DURING THE PERIOD 1939-1945. British Intelligence Objectives Subcommittee overall report No. 17 (Ref. No. 677.13 (43) 1939/1945). London: H. M. Stationery Office, 1949. 24 p.; Price: 20¢.

In addition to the information on jute processing contained in the 2 main reports on the German Jute Industry (nos. 198 and 624), a considerable amount is to be found in other intelligence surveys, and these additional data have now been collected into an overall report. The report surveys processing methods, including the use of the oil-soluble emulsifying agents developed by I. G. and of colorless water-soluble sizing agents based on polyvinyl compounds, and deals also with alternative raw materials—paper, regenerated cellulose, green flax and hemp—and their processing. Information is given on I. G. mildewproofing agents, many of them containing dinitrophenol or dinitrocresols, and on the use of the cuprammonium process in rotproofing. A section on flameproofing analyzes a number of proprietory agents based on ammonium phosphates. The use of nitrocellulose, plasticized polyvinyl chloride, polyvinyl acetate, polyisobutylenes, and polyamide resins in waterproofing is described, and of proprietory emulsions of waxes and aluminum salts in water-repellent treatments.

Measurement of friction between single fibers. IV—Influence of various oxidizing and reducing agents on the frictional properties of wool fibers. Joel Lindberg & Nils Gralen, Swedish Inst. for Textile Research. *Textile Research J. 19*, 183-201 (Apr. 1949).

Using the apparatus previously described, data were obtained on the frictional properties of wool fibers after treatment with chlorine (wet and dry chlorination), potassium permangenate, sulfuryl chloride, and combinations of these with sodium bisulfite. It is concluded from the experiments that the cuticle of the fiber is more easily destroyed chemically than is the cortex, and, therefore, there must be a difference in chemical constitution between these substances. The frictional behavior of wool and its change with different reagents is explained by the histological structure of the outer layers of the wool fiber. From the outside there is a chemically resistant mebrane, about 100 Å thick, an intermediate layer, and the scale shields. This view of wool histology opens new ways of modifying the structure and of changing the frictional properties—e.g., for anti-felting treatments. (See also TT: *4*, 380- Part I; *5*, 449- Part II; 710- Part III; and *5*, 472- Note).

Artificial fibers A 2

Artificial filaments and yarn. Rudolph Woodell (to E. I. du Pont de Nemours & Co.). USP 2 462 927, Mar. 1, 1949.

Regenerated cellulose filaments and yarns which can be permanently elongated to several times their original length are made by extruding an aqueous cellulosic solution such as viscose through a nozzle containing one or more holes into a bath which exhibits a rapid coagulating action on the cellulose xanthate dispersion in the viscose while at the same time possessing very little or no tendency under the conditions prevailing during coagulation to convert the cellulose xanthate to regenerated cellulose. The tension imposed on the filaments prior to passing out of the coagulating bath is very low, preferably not in excess of 0.01 g per denier. The yarn is then regenerated in the relaxed state, that is, substantially free from tension. The resulting regenerated cellulose yarn is then subjected to any desired liquid treatments, such as purifying treatments and treatments with a suitable finish, and is dried,

these steps subsequent to regeneration also being effected while the filaments are substantially free from tension. The yarn or filaments are then treated in the relaxed state with liquid ammonia until thoroughly wet out and, after the removal of the ammonia, the yarn is then dried in the absence of tension.

Cellulose derivative combined with N-alkoxymethyl polyamide. Robt. L. Brown (to E. I. du Pont de Nemours & Co.). USP 2 462 159, Feb. 22, 1949.

Stable homogeneous solutions and clear, transparent products composed of N-alkoxymethyl polyamide and an organic cellulose derivative can be formed by dissolving a synthetic linear polyamide and one or more organic derivatives in a solvent which will dissolve both of these materials, and then reacting the synthetic linear polyamide with formaldehyde and an alcohol or a mercaptan, in the presence of an acidic substance as a catalyst for the reaction, to convert —NH—CO— functional groups of the polyamide to $-N(CH_2AR)-CO-$ functional groups in which R is an alkyl radical and A is oxygen or sulfur. As a catalyst, an acid having an ionization constant between $1x10^{-2}$ and $1x10^{-5}$, is preferred. The resulting solution may be formed into filaments, films or other structures which are clear and transparent. If desired, the combined polymeric product composed of N-alkoxymethyl polyamide and organic cellulose derivative may be precipitated from the solution in which it is formed, washed, dried and redissolved in a solvent therefor, and then turned into the desired structures or articles. The latter may be insolubilized by heating the same, preferably in the presence of an acid catalyst.

Comparison of the mechanical and technological properties of rayon staple with natural fibers. J. Mockel. Soc. Belge de Fibranne. *L'Industrie Textile 725,* 74-7 (Apr. 1947); *in French.*

Line drawing are used to describe the longitudinal surfaces and of the cross-sections of wool and of wool-type rayon staple fibers. Load-elongation curves are given for yarns made of wool, normal rayon staple, rayon staple with a round cross-section, for a special wool-type of rayon staple, and for a mixture of 70% wool and 30% rayon staple. There are also curves comparing total elongation with elastic elongation and data which show that the different types of rayon staple have widely different elasticities. The importance of crimp and its measurement are discussed and illustrated by means of curves. Tenacity to meshing was measured by looping 2 fibers together and subjecting them to a pull until they break. Some data are given for the tenacity of wool and rayon staples. The resistance to folding was also investigated and it was concluded that this is the best criterion in evaluating a fiber for actual use because an examination of worn clothing reveals that fibers have broken at the lower ends of the trousers, at the collars, cuffs, the edges of the pockets, etc.

Continuous production and/or treatment of artificial threads. Lustrafil Ltd. Indian P. 36 824-25 (through *J. Sci. Ind. Research (India)*).

Drying and conditioning of yarns. Wm. H. Furness (to Am. Viscose Corp.). USP 2 460 879, Feb. 8, 1949.

A drying and conditioning device for rayon yarn, particularly for use on the continuous process systems, is described. It may be applied on the single-reel type of continuous spinning or the multiple reel type. Essentially, the device is a casing around the reel with a manifold at the bottom end. This manifold is compartmentized, alternate compartments being under pressure and the intervening ones under suction. The pressure compartments are connected to 2 conduits in which the compressed air is heated to the desired temperature before entering the hot air manifold. If desired, a third conduit may serve some of these pressure compartments under conditions so as to apply moisture to the previously dried yarn. Suction compartments are connected to another conduit under suitable suction means. The heated air travels from one pressure compartment, around the reel, and then to the adjoining suction compartment, drying the material in its travel.

LCL

Fiber-forming synthetic linear polyamides. E. I. du Pont de Nemours & Co. Indian P. 35 137 (through *J. Sci. Ind. Research (India)*).

Formaldehyde curing of zein fibers. Cyril D. Evans & C. Bradford Croston, Northern Regional Research Lab. *Textile Research J. 19,* 202-11 (Apr. 1949).

Conditions necessary for the rapid formaldehyde curing of zein fibers were investigated and a continuous 2-stage curing process was developed. The first stage (precuring) consists of a mild cure to introduce approximately 0.75% formaldehyde into the fiber and produces, after stretching, a fine-diameter fiber of exceptional strength and elasticity. The second stage (post-curing) con-

sists of a strong cure to introduce about 3.0% additional formaldehyde into the stretched fiber to stabilize its length. Formaldehyde is bound under both alkaline and acid conditions, but it is only under acid conditions that any curing occurs. Ammonium salts act as catalysts for the reaction in the pH range 0 to 4 and the resulting fibers are stable to boiling in mild alkali. When cured under highly acidic conditions (below pH 0), the fibers are stable to both acid and alkaline boiling.

Highly polymeric linear polyesters. Imperial Chemical Industries Ltd. Indian P. 35 193 (through *J. Sci. Ind. Research (India)*).

Method of dissolving cellulose in ammoniacal copper compounds. Theodor Lieser (to Am. Bemberg Corp.). USP 2 447 514, Aug. 24, 1948.

Cellulose solution in ammoniacal copper compounds are prepared by cooling the solutions to −8°C. The concentrations of Cu and NH_3 required in the solution is considerably reduced by this method, and the recovery of the Cu is facilitated. The coagulation of the cellulose is also facilitated.

EKF

Method of making continuous filament yarn. Carl R. Dolmetsch (to Celanese Corp. of Am.). USP 2 462 950, Mar. 1, 1949.

The method of forming an improved continuous-filament yarn comprises forming at least 2 continuous-filament yarns, taking up said continuous-filament yarns in 2 packages, rewinding one of said continuous-filament yarns to reverse the end-for-end relationship of said packages and combining the 2 yarns by winding said yarn together onto a common package while applying a twist thereto whereby the yarn from the inside of one package is in contact with the yarn from the outside of another package. The invention aims to eliminate or effectively diminish the lack of uniformity in continuous-filament yarn which causes uneven dyeing, and, to this end, provides such a blending of the 2 or more yarns that a recurring condition existing in a certain part of each yarn due to its structure will be effectively concealed or compensated for by the yarn combined therewith.

Method of making fibrous glass articles. Martin E. Nordberg (to Corning Glass Works). USP 2 461 841, Feb. 15, 1949.

The primary object of this invention is to form glass fibers from compositions which are easy to work and thereafter to convert the fibers to a different composition by leaching out at least

some of the fluxes used in melting the glass. Such porous leached glass fibers can be consolidated, i.e., revitrified or converted to non-porous vitreous glass fibers by heating them at temperatures well below the temperatures which are required to consolidate similar porous glasses in massive form. Felted or woven glass fibers can be leached and consolidated as readily as individual fibers with a great saving in time, materials and overhead costs. Fibers and fabrics thereof which have been leached and consolidated in accordance with this invention are unique in their texture and softness as compared to ordinary glass fibers and fabrics. They also possess considerably higher heat resistance, improved electrical resistance and low power factor, and have strong absorptive powers for liquids and vapors. The porous fibers are therefore particularly useful in filters and selective absorption devices for the purification of air and other gases.

Methods for the treatment of regenerated cellulose thread. Carl Schlatter & Carl V. Holmberg (to Am. Viscose Corp.). USP 2 460 400, Feb. 1, 1949.

Methods of treating moisture-laden, artificial, filamentary material in the form of wound packages for the purpose of drying and/or conditioning are described. Drying time is greatly reduced and a final product of superior quality is obtained in each case.

CAC

"Orlon" acrylic fiber—a new synthetic. J. B. Quig, E. I. du Pont de Nemours & Co. *Papers Am. Assn. Textile Technologists 4*, 61-70 (Mar. 1949).

This discussion of the properties of Orlon, its manufacture and application, is supplemented by numerous graphs and photomicrographs. Data are given on the physical properties, outdoor resistance, chemical and biological resistance, effect of temperature, shrinkage, adhesion, flammability, toxicity of combustion products, and the electrical and microscopic properties. The finishing and dyeing of Orlon are also discussed. A number of uses as an industrial, domestic and clothing fabric are listed. It was brought out in the discussion that Orlon is inferior to nylon as a hosiery fabric.

"Orlon" acrylic fiber—a new synthetic. J. B. Quig. *Can. Textile J. 66*, 42-4, 46-7 (Jan. 7, 1949).

Properties of "Orlon" fiber. *Textile Age 13*, 20, 22, 24, 28, 32 (Jan. 1949).

See TTD: *6*, 101, and above.

Process for manufacturing artificial fiber from

proteins contained in cotton seed. Jett C. Arthur, Jr., Melvin L. Karon, Adrian F. Pomes & Aaron M. Altschul (to U. S. of Am.). USP 2 462 933, Mar. 1, 1949.

A method of preparing alkaline dispersions of cottonseed protein as spinnable liquids of a viscosity enabling them to be extruded through orifices into coagulating baths to form fibers, comprises treating an aqueous suspension of cottonseed protein of 10 to 20% concentration with acid, the acid being present in a concentration of 0.03 M to 1 M, for a period up to 1 hour, at a temperature of about 20° to 40°C and then treating the protein with alkali to form a dispersion.

Rayon and like spinning machines. Dobson & Barlow Ltd., & Hartley. Indian P. 37 867 (through *J. Sci. Ind. Research (India)*).

Reinforced thread-advancing reel. Richard W. Stanley (to Am. Viscose Corp.). USP 2 461 576, Feb. 15, 1949.

This patent is a continuation of USP 2 403 031, July 2, 1946 (See TTD: *3* 367). The reel, which is adaptable to either a cantilever or double-end supported structure, incorporates a structural principal which, when embodied in a reel of considerable axial length, provides uniform efficiency in thread-advancing action throughout the length of the reel, and, at the same time, is adapted to operation at high speeds of rotation of the reel. Reinforcement is also provided for preventing bending of the bars under the pressure exerted by the strand or thread, especially when the strand is of large size or when strong shrinkage tension is exerted.

Vicara—new fiber derived from zein. W. P. ter Horst, Virginia-Carolina Chem. Corp. *Am. Dyestuff Reptr. 38,* 335-8 (Apr. 18, 1949).

Data on properties of Vicara, a new fiber made from zein, one of the proteins in corn, are given, and its development and production are described briefly. Vicara exhibits a combination of properties, and certain unique properties, not possessed by any other fiber. While the new fiber can be made into 100% Vicara yarn or fabric, the best results to date have been obtained in blends; it may be processed on the cotton and woolen systems.

Vicara—new protein fiber. Anon. *Textile Industries 113,* 107-8 (Apr. 1949).

The preparation of Vicara fibers from zein, the processing of the fibers, and the properties of the fibers are discussed.

New Vicara fiber has promise. Anon. *Am. Wool Cotton Reptr. 63,* 71, 73 (Mar. 17, 1949).

Vicara, a new fiber produced from zein, is a soft, uniform fiber, light gold in color. It can be spun and woven on any conventional system and has been blended with cotton, wool, rayon, nylon and ramie. The elasticity of the fiber and its warmth are said to be equal to wool. It is resistant to mildew, bacteria, etc. and has water repellency characteristics. Dyeing of the fiber can be accomplished with the usual dyes, and it can be bleached, stripped, desized, and scoured.

THE BRITISH RAYON MANUAL. London, Harlequin Press Co. Ltd., 1948. 256 p.; Price: 21/.

YARN PRODUCTION B

Carpet yarn manufacturers modernize for efficiency. Stillman B. Hyde, Whitin Machine Works. *Am. Wool Cotton Reptr. 63,* 12-14 (Mar. 24, 1949).

Improved carding, spinning, and twisting machinery for carpet yarn manufacture are discussed, including 2-cylinder cards, high feeders for carding machines, tape condensers, waste end blowers, spinning frames to replace mules, large package selective type trap twisters, etc.

New Saco-Lowell system for processing worsted yarn. III-IV. John L. Beacon. *Textile Age 13,* 78-80, 82 (Feb. 1949); 60-3 (Feb. 1949).

This is a continuation of a series of articles on this subject. In Parts III & IV roving, spinning and twisting units are discussed. (See TTD: *6,* 184).

Process for forming yarns. Robt. Burgess, Jr. USP 2 462 842, Mar. 1, 1949.

Yarns composed of fibers of a number of different colors are obtained by dyeing rovings and doubling and drawing the rovings of different colors until the fibers are intermingled as desired, and subsequently spinning the fibers into yarn. The process may be used with any fiber that can be processed on the cotton system.

[Processing of nylon staple, I-IV]. R. D. Bennett, Canadian Industries Ltd. *Can. Textile J. 65,* 44-6 (May 25, 1948); 46, 48, 50 (June 25, 1948); 42, 43, 44, 46 (Aug. 20, 1948); 46, 48, 52 (Sept. 17, 1948).

The four parts of this series of articles are entitled as follows: I—Properties of nylon staple fiber; 2—Processing of nylon staple on woolen machinery; 3—Processing nylon staple on cotton

machinery; 4—Processing nylon staple on the Bradford worsted system, which concludes the series.

Roving reel, skein reel, umbrella reel. Anon. *Textile Age 13,* 139-40 (Apr. 1949).

A hand-operated 36″ roving reel, a sample runner type skein reel, and an umbrella reel are briefly noted.

Spinning staple nylon. Anon. *Am. Wool Cotton Reptr. 63,* 11-13, 16 (Feb. 17, 1949).

The various methods used in processing nylon staple including blending, picking, carding, and spinning are described. Uniform picker laps, the speed adjustments of cards, use of lower twists in spinning, and the breaking strength of blends are among some of the problems discussed.

Spinning test methods. Shirley Institute, 1948. C. Underwood, Shirley Inst. *Empire Cotton Growing Rev. 26,* 14-31 (Jan. 1949).

The 2 types of spinning tests used by the Shirley Institute are described. The large-scale spinning test, known as "ST", is basically the same test that has always been used. (Cf. *Shirley Institute Memoirs, 14,* (1935) Appendix.). The small-scale spinning test, or SSST, was developed around 1940, and is designed for the rapid testing of quantities of cotton much smaller than are required for the large-scale test. The fiber tests made on ST and SSST samples are the same and follow the basic methods described in *Shirley Institute Memoirs, 11,* No. 1 (1932), or *J. Textile Inst. 23,* T 35 (1932).

Spun-dyed "Fibro" with particular reference to its blending possibilities. S. Potts, Courtauld's Ltd. *Textile Weekly 43,* 252, 254-6 (Feb. 4, 1949).

The blending of spun-dyed "Fibro" to achieve a wide variety of effects, particularly soft hues, is discussed. A color-blending circle is given for use in producing effect yarns.

Tape sewing machine. Anon. *Textile Age 13,* 64-5 (Jan. 1949).

A brief illustrated description of a portable sewing machine for sewing spinning and twister tapes in textile mills is given.

Fiber preparation B 1

Accurate weighing for better blends. Anon. *Textile Industries 113,* 110-12 (Apr. 1949).

The Fiber Meter, an automatic feeding and weighing machine with electrical timing, is discussed

and details are given of its design and construction, operation, and maintenance. Accurate and thorough blending of fibers is simplified by this new piece of equipment. As many Fiber Meters must be used as there are different fibers.

Apparatus for cleaning textile fibers. Manfred T. Hoffman. USP 2 463 272, Mar. 1, 1949.

Wool is rendered clean enough for all ordinary purposes and the need for acid carbonizing of either the stock or the fabric made therefrom is eliminated by subjecting the carded and crushed web issuing from the rolls of a Peralta, or similar high-pressure crushing machine, to air blasts which disturb the lie of the fibers and remove the foreign matter which has been pulverized. The web is then subjected to further crushing in another Peralta machine which pulverizes practically the entire remaining part of the foreign matter, apparently because of the change in the lie or position of its presentation to the crushing surfaces. This, with subsequent carding, dusting, or other cleaning processes, removes substantially 100% of the foreign matter.

Felting of animal fibers. J. Menkart & J. B. Speakman. *J. Soc. Dyers Colourists 64,* 14-9 (Jan. 1948).

In investigations of methods for increasing the felting power of wool fibers by hardening the root ends, softening the tip ends, or both together, information was obtained that is of value in the carroting of fur fibers. It was found that reducing agents, e.g., sodium metabisulfite, are highly effective with wool fibers and should be equally effective with fur fibers. This supports the view that the function of carroting agents is to promote disulfide bond breakdown in the tips of the fibers. The range of carroting agents, therefore, may be extended to include all compounds which cause disulfide bond breakdown. Best results in rate of felting were obtained when hardening of root ends was combined with softening of the tips; this was achieved by hardening the fibers over their entire length with cross-linking agents and then softening the tips in the usual way with carroting agents. A marked increase in the felting power of rabbit fur was obtained with fur which had been cross-linked with mercuric acetate and then carroted with mercuric nitrate. This type of treatment should replace present-day carroting processes in the preparation of fur fibers for felt-making.

Magnetic separators protect equipment. Anon. *Textile Industries 113,* 119-20 (Feb. 1949).

Magnetic separators reduce fire and machine damage from tramp metal. Suggestions for installing these separators in opener-picker lines are given.

Opening room fires eliminated. Anon. *Textile Industries 113,* 139 (Feb. 1949).

Eriez magnetic humps installed between feed tables and opening equipment are reported to completely eliminate fires.

Picker production gains with V-belts and lineshaft drive. Anon. *Textile Industries 113,* 112 (Feb. 1949).

A 2% increase in production due to the replacement of flat belts with V-belt drives is briefly noted.

Preparing rags for grinding or garnetting. L. Marbach & Petrie & McNaught Ltd. Australian P. 131 585, Mar. 1, 1946.

A process for preparing rags for the recovery of the fibers for re-manufacture into yarn or flocks comprises thoroughly soaking the rags by immersion in an emulsion or a solution consisting of or containing a lubricating medium, followed by the extraction of excess liquid therefrom and, if desired, by drying. The dried rags may be stored and later reconditioned for grinding, etc., by passage through a water bath, or, in the case of flock production, ground in the dried condition. The soaking, which follows the usual washing procedure to remove the dirt, is carried out in a 3% glycerine solution or/and a 1-in-4 oil-in-water emulsion.

Wool opener saves one-third labor costs. Anon. *Textile Industries 113,* 110-11 (Feb. 1949).

The Proctor-Leonard Rocar is a new wool opener that is designed to handle all types of wool and to replace the bale breaker, picker, and cylinder wool opener. Increased production, reduced maintenance, and gentle fiber treatment are claimed.

Worsted yarn quality—effects of scouring and carding on fiber length. Lanarius. *Can. Textile J. 66,* 54, 55 (Apr. 1, 1949).

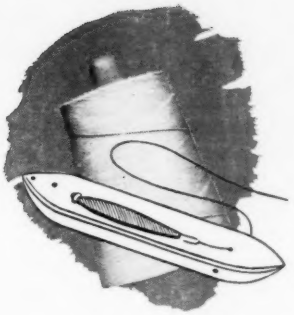
Suggestions are given for scouring and carding techniques that will not break or otherwise damage woolen fibers to be used in worsted yarns.

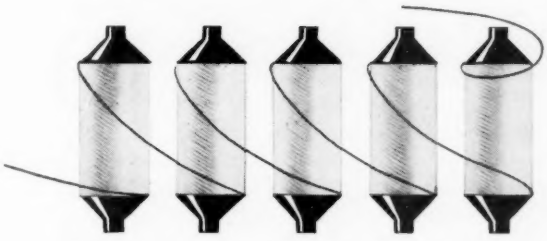
V-belt drive on wool opener absorbs shock loads. Anon. *Textile Industries 113,* 116 (Feb. 1949).

A brief note is given on the use of V-belt drives on a wool opener, used in carpet manufacture.

Carding and combing B 2

Automatic sliver roll forming machines. Douglas





Textile

ENGINEERING

Plans and designs for all types of projects related to the textile industry. Appraisals, modernization studies, machinery layouts, air-conditioning, power and water filtration plants, and other phases of textile engineering.

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Architects and Engineers
ATLANTA

THIRTY-ONE YEARS' NATIONWIDE EXPERIENCE IN INDUSTRIAL AND TEXTILE DEVELOPMENT

Fraser & Sons Ltd. Indian P. 38 059 (through *J. Sci. Ind. Research (India)*).

Bare cylinder grinder soon pays for itself. Anon. *Textile Industries 113,* 117 (Feb. 1949).

A brief note is given on the Bare Cylinder Grinder used for grinding card cylinders and doffers true before re-clothing.

Conference on carding held at the University, Leeds (England), Dec. 16, 1948. *J. Textile Inst. 40,* P65-P149 (Feb. 1949).

These are papers which were presented at the conference: "Carding-Evolution and Early Development," J. G. Martindale. P65-P78; "The Woolen Carding Condenser and its Effects on Slubbing Variation," G. H. Thorndike. P79-P93; "Recent Research on the Carding of Wool," P. P. Townsend. P94-P105; "Fiber Arrangement in Card Slivers," W. E. Morton & R. J. Summers. P106-P116; "The Carding of Jute and Flax," H. J. Dorman & A. V. Pringle. P117-P131; "Sliver Formation by Carding and Alternative Methods," W. Hardacre. P132-P149.

Hunter machine has new garnet. Anon. *Am. Wool Cotton Reptr. 63,* 65 (Apr. 21, 1949).

Fibers may be blended and carded in one machine by the use of a new type of cross-feed conveyor. This new attachment is assembled under the middle doffer and does not require splitting the frame. A comb is attached to the second doffer in a 4-cylinder garnet and makes the process more flexible.

Individual drives prove advantageous. Anon. *Textile Industries 113,* 121 (Feb. 1949).

Installation of individual drives in the card room is reported to increase production, give more uniform speed of cards, reduce static electricity and accident hazards, give a cleaner and brighter card room, etc.

New type of card clothing. Anon. *Am. Wool Cotton Reptr. 63,* 73 (Mar. 17, 1949).

A brief note is given on a new type card clothing that has a synthetic rubber face on felt, together with several plies of cotton. Less waste, less frequency in stripping the cards, and increased production are claimed.

Statistical approach to sliver quality control. David Himmelfarb. *Fibres, Fabrics & Cordage 16,* 82-6 (Mar. 1949).

Suggestions are given for establishing a sliver quality control system for use in cordage manufacture. Specimen control charts are presented

and their use noted briefly.

V-flat drive enables mill to save floor space at speeders. Anon. *Textile Industries 113,* 139 (Feb. 1949).

A brief note is given on the installation of V-flat drives on speeders in a card room.

Whitin announces new high speed comber. Anon. *Textile Industries 113,* 191, 193 (Mar. 1949).

Features of the Model J, eight-head, high-speed comber are discussed.

Drafting and roving B 3

Drafting device for use for cotton or other fibers. Rajagopalan. Indian P. 37 515 (through *J. Sci. Ind. Research (India)*).

Drafting long, fine-fiber cottons on super-draft roving frames. Jas. R. Cooley, Southern Regional Research Laboratory. *Textile Industries 113,* 110-13, 223 (Mar. 1949).

A discussion is given of a study of the 8 x 4" Super-Draft roving frame. Results indicate that the machine is more suitable for processing short staple cotton. Details of a new draft guide for the frame for processing long, fine-fiber cotton are discussed. Production, roving, and yarn uniformity are reported improved by the use of the new draft guide.

New top rolls aid roving frame production. Anon. *Textile Industries 113,* 125 (Feb. 1949).

It is reported that the use of Climax and Sintex rolls on roving frames eliminates lubrication, gives fewer ends down, and lessens lint accumulation on the arbors.

Synthetic roll covers resist lap-ups. Anon. *Textile Industries 113,* 116-17 (Feb. 1949).

Lapping-up of synthetic rubber cots in drafting has been shown to be related to electro-kinetic phenomena which causes moisture to cling to the surface of the fibers and cots. The lapping tendency can be overcome by the addition of certain electrolyte materials to the synthetic rubber.

Spinning B 4

Auto-Nip slub catcher. Anon. *Textile Age 13,* 90 95 (Feb. 1949).

The Auto-Nip slub catcher, designed to inspect worsted and spun rayon yarns spun on the American system, is very effective in slubbing soft slubs, especially of the torpedo type. A great ad-

vantage of this new slub catcher is that skinbacks are minimized.

Color helps control speed. Anon. *Textile Industries 113,* 115 (Feb. 1949).

Interchangeable rim motor sheaves, used to change spindle speeds of twisters and spinning frames, may be painted an identifying color so that it is possible to tell at which speed the frame is operating.

Common faults in cotton yarns. N. H. Pomfret. *Can. Textile J. 66,* 42-3 (Feb. 4, 1949).

In this discussion a number of yarn faults, e.g., slubs, cockled yarn, and wing yarn, are considered and suggestions are given for their prevention.

Conversion of a winding spindle to a spindle for ring spinning. Edmond Masarel-Prourost, Jos. Erhart & Ernest Duzatter. French P. 910 717 (no date). *L'Industrie Textile* No. 725, 86 (Apr. 1947).

A number of rings are placed on the shaft so that their outer surfaces are tangent to the same plane, and the upper bearing is placed below the driving pulley. This makes possible the use of tubes weighing at least 15 g and at least 22 cm long. The new spindle can be used on ring spinning frames and more than 50 g of material can be wound on them. This arrangement also prevents the spindle from whipping at critical speeds.

Cotton mill builds larger yarn packages. L. D. Sayers. *Textile World 99,* 108-9 (Apr. 1949).

The Tallassee, Ala., plant of Mt. Vernon-Woodberry Mills has increased both diameter and length of spinning bobbins on 6/1-19/1 yarn. Operating details are given.
LCL

Defects in woolen and worsted yarn and fabrics. *Am. Wool Cotton Reptr. 63,* 9-11 (Feb. 24, 1949).

Causes of defects in woolen and worsted yarns and fabrics are discussed with methods of finding defects and methods of preventing them given. Tests for recognizing medullated fibers, for count irregularity, etc., are discussed.

Extra doff boxes speed yarn handling. Anon. *Textile Industries 113,* 147 (Feb. 1949).

The use of additional doffing boxes in the spinning room saves excess handling in transferring yarn to the winding and spooling departments. It also eliminates tangled bobbins.

Influence of mixed fibers on yarn and fabric design.

Roy Wood. *Textile Mfr. 75,* 134-7 (Mar. 1949). See TTD: *6,* 165.

Metallizing saves $43,000 yearly. Anon. *Textile Industries 113,* 117-18 (Feb. 1949).

The metallizing of spindles on rayon spinning machines with steel saves replacements from wear and corrosion.

New Era spinning spindle availability announced. Anon. *Textile Industries 113,* 201-2 (Mar. 1949).

Among the outstanding features of the New Era Spindle are that the central shaft is stationary, the support of the load is between 2 bearings, and the yarn carrier is a tube. No oil is required for the spindles and there is a definite power saving in using them.

New saddles and cap bars cut costs. Anon. *Textile Industries 113,* 121 (Feb. 1949).

Slixonice saddles and cap bars eliminate rolls sticking, reduce roll picking frequency, and eliminate soiled yarn. They aso give constant drafting, longer roll life, etc. due to the fact that they never need lubrication.

Nylon traveler report. Anon. *Textile Industries 113,* 199-200 (Apr. 1949).

A nylon traveler, that is claimed to give increased traveler life, reduced lubrication, and cleaner and better yarns produced at higher speeds, is briefly noted.

Spindle adapter. Karl A. Gelpke (to Gelco Development Corp.). USP 2 463 484, Mar. 1, 1949.

A spindle adapted for spinning frame spindles comprises a barrel formed of light weight metal, a tip formed of different metal engaged with the barrel, and a plurality of set screws disposed in kinetic balance and engaging the tip and the spindle and thus removably fixing the adapter to the spindle.

Spindles for textile machinery. Hoffmann-Tweedales Ltd. Indian P. 36 958 (through *J. Sci. Ind. Research (India)*).

Spinning costs reduced with Pneumafil. Anon. *Textile Industries 113,* 122 (Feb. 1949).

A Pneumafil system installed on wool spinning frames collects loose fibers and foreign matter from the yarn and conveys broken ends to the collector. Advantages from the use of this system are listed.

Spinning rayon on cotton system. Anon. *Am.*

Wool Cotton Reptr. 63, 15-16, 26 (Jan. 27, 1949).

Yarn and fabric construction, including proper denier per filament, twists, and blends are discussed. Details of printing spun rayon fabrics are also briefly reviewed.

Spinning yarn direct from sliver. Anon. *Textile Recorder 66,* 56-8 (Apr. 1949).

Features of the "Nastrofil" spinning frame are described. This machine, which is an Italian invention, makes possible the spinning of cotton, rayon staple, and other fibers directly from the normal sliver from the draw frame. Drafts of 200 to 250 are obtained and the desired count is obtained by one final twisting. Drafting takes place in a slow and constant manner to give a uniform and regular distribution. Several of the Nastrofil machines are in operation in Italy and Brazil; an English manufacturer has recently acquired the license for manufacturing the machines in Britain and the Commonwealth.

Stroboscopic analysis improves quality and production in spinning. Anon. *Textile Industries 113,* 112 (Feb. 1949).

The use of the Strobotac in the study of faulty operation of spinning equipment is reported to increase spinning room production 3.5% and to produce yarn of better quality with fewer seconds.

Tapered paper tubes here to stay. Anon. *Am. Wool Cotton Reptr. 63,* 15-16 (Feb. 17, 1949).

Decreased bolster wear, elimination of spindle wear, saving in power, decreased vibration, a decreased number of ends down, and equalized yarn tension result from the use of a sleeve type spindle with a tapered paper tube bobbin, driven from the tip of the spindle. These advantages permit, in many cases, larger packages.

Uniform packages and tails assured with pneumatic spinning controls. Anon. *Textile Industries 113,* 105-6 (Feb. 1949).

The Numo automatic spinning control unit consists of one or 2 valves, one or 2 cylinders, and tubing for connecting the valves and cylinders. It is designed to eliminate uneven packages and tails by automatically bearing the rail down when the frame is ready to doff. Major savings due to this unit are reported.

Use of nylon on woolen and worsted systems. Anon. *Am. Wool Cotton Reptr. 63,* 11-12, 48-9 (Mar. 10, 1949).

Two methods of increasing the strength of woolen and worsted yarns by the use of nylon are: (1) plying a nylon filament yarn with a woolen or worsted yarn (2) use of nylon filament yarn to form a "core" thread in the spinning operation. Tables are given showing the results obtained from this combination.

Winding and spooling B 5

Bobbin retriever saves time and effort. Anon. *Textile Industries 113,* 135 (Feb. 1949).

A diagrammatic sketch of an inverted V-trough for retrieving bobbins under spoolers is given.

Doffing indicator system. Jos. O. Frist & Ernest K. Bauer (to Am. Viscose Corp.). USP 2 463 028, Mar. 1, 1949.

This invention provides an indicator system for signalling when a predetermined winding period has been terminated, and for indicating when each successive bobbin of a multiplicity of bobibns is to be doffed upon completion of the winding period, thus insuring that all of the doffed bobbins have approximately the same amount of thread wound thereon.

Electro-pneumatic warp spooler for woolen yarns. Anon. *Textile Industries 113,* 213, 215 (Feb. 1949).

A new warp spooler is constructed to operate at the higher speeds allowed by the large spinning frame bobbins or cones. The pneumatic compression eliminates yarn slackening on the spool. Other features of the spooler are briefly discussed.

Future throwing machinery. Alan C. Lorin. *Textile Age 13,* 20, 22-4, 28 (Mar. 1949).

Recent developments in textile processing and machinery are reviewed, and the needs of future throwing machinery to keep pace with these developments are described.

High-speed pirn winders build packages on varied principles. Anon. *Silk J. Rayon World 25,* 47-8, 50-1 (Feb. 1949).

This is a descriptive survey of a number of British and Swiss pirn winders, their features and specifications.

Improvement in twisting spindles. Courtaulds Ltd. French P. 913 346 (no date). *L'Industrie Textile* No. 725, 86 (Apr. 1947).

A device is described by means of which yarns can be twisted while being unwound from a package turning at 7,000 rpm or faster. It consists of a rotating support for the package and a rigid shaft provided, at its lower extremity, with ball bearings

and at its upper extremity with roller bearings or ball bearings located at or near the center of gravity of the thread package. The frequency of vibration of this shaft with the package on it is much lower than 7,000 vibrations per min., or is less than 3500 vibrations per min.

King-spool twister. Anon. *Textile Age 13,* 141-3 (Apr. 1949).

Advantages of the new King-Spool twister are reported. The King-Spool itself is a bobbin with a cone head on a cylinder tube.

Merits of dry and wet twisting. Anon. *Textile Industries 113,* 127, 129 (Apr. 1949).

Wet-twisting of plied yarns produces a smoother, stronger, more solid and compact thread, with much less lint deposited on the frame, than dry-twisting. Industrial threads and certain warps may be wet-twisted to advantage, but for soft, pliable yarns such as knitting yarns, crocket yarns, and hosiery yarns, it is better to use dry-twisting. The English and Scotch systems of wet-twisting are described, and the use of soft and hard water is discussed.

Model K selective-type trap twister. Stillman B. Hyde. *Whitin Rev. 16,* 14-21 (Feb. 1949).

This is a description of the features and operation of the Whitin twister designed for the twisting of 2-, 3-, and 4-ply yarns to a large delivery package designed for overend unwinding.

New reels facilitate skein dyeing. Anon. *Textile Industries 113,* 131 (Feb. 1949).

A double-end Fidelity skein reel can be adapted to different skein diameters, different yardages, and different speeds. It decreases labor costs, increases production, reduces waste, and requires less floor space.

New thread guide wears smooth. Anon. *Textile Industries 113,* 118-19 (Feb. 1949).

Thread guides made of Bor-Al-Sil are reported to give excellent results on winding machines and warpers. These guides have a penetrating hardness that goes all the way through the material and have the advantage of wearing smooth.

Up-twister. Rene Bouvet (to Am. Viscose Corp.). USP 2 461 586, Feb. 15, 1949.

This invention is particularly concerned with the modification of the flyer to provide more uniform tension upon the yarn or the like as it is withdrawn from the package carried on the spindle of the up-twister. The up-twister is provided with a flyer which has a lateral arm upon which a

guide is freely, slidably and rotatably mounted. The freely mounted guide is interchangeable with others so that it may be selected, particularly as to weight, for each size of yarn being twisted.

Winding machine. Ralph Oppenheim. USP 2 461 231, Feb. 8, 1949.

This invention provides a machine for winding strands or bands of raffia or any other material that comes in short or uneven length strands around strips of cloth, paper or belting or any other desirable filling, and includes the provision of a mechanism for tucking in the rear ends of a strand under the forward end of the next succeeding strand, a mechanism for facilitating the wrapping of strands of different widths upon strips of different widths, and means for controlling the pitch of the helical wrapping and for controlling the thinness or thickness or amount of overlapping of the wrapping material. Means for facilitating the use of winding shafts of different diameters, improved means for holding the strip upon which the material is wound against the winding shaft immediately ahead of the wrapping region and means for holding the last convolutions of the helical wrapping compacted against the shaft are also provided.

Winding machine. Ferdinand A. Decker, Jr. (to Am. Viscose Corp.). USP 2 461 593, Feb. 15, 1949.

This invention provides a tail winding arrangement of such character that the yarn during winding into the tail passes about a guiding surface having the minimum possible difference in angle from that of the yarn when it is being wound into the main package. It also avoids irregularity on the yarn during the tail-winding by providing a tail-winding system in which the yarn is not under the influence of the traverse guide during tail-winding but is automatically caught by the traverse guide after release by the tail-winding guide. In this manner, the tension to which the yarn is subjected is not substantially different during winding of the tail than during winding of the package, and there is little opportunity for the fabrics made from such packages to show differences at the regions formed of the tails, in appearance, handle dyeing characteristics and the like, when artificial yarns such as rayon, vinyl resins, nylon and the like, which are peculiarly sensitive to variations in tension, are used for producing the fabric.

Winding machines—principles and practices. 16-19. Jesse W. Stribling. *Textile Industries 113,* 119, 121, 123, 125 (Jan. 1949); 165, 167, 169,

171, 173 (Feb. 1949); 121, 123, 125, 127-8 (Mar. 1949); 137, 139, 141, 215 (Apr. 1949).

These four articles continue the series on winding and are devoted to discussions of drum winders, the Roto-Coner, slub catchers, supply bobbins, etc. (For previous parts see TTD: *5*, 230; *6*, 113).

Worsted mill efficiency improved with new skein reelers. Anon. *Textile Industries 113*, 147 (Feb. 1949).

Advantages derived from the use of Fidelity single end 9-skein reelers are noted.

Yarn processing B 6

Change gears control yarn tension in fiber bonding machine. Anon. *Product Eng. 20*, 90-3 (Apr. 1949).

Six photographs and 3 diagrams, with paragraph-length captions, describe the continuous machine built by Walter Kidde & Co. for the resin impregnation process of the Dan River Mills. Three distinct tension zones control the elongation of the yarn during bonding. A single electric motor, operating through chain drives, powers a series of rolls which operate at successively increasing speeds to control the tension as the yarn goes through impregnating, twisting and untwisting, squeezing, and drying operations. Change gears determine the roll speed and hence the zone tension. All phases of operation are electrically controlled and interlocked to stop operation in an emergency without damaging the yarn.

Yarn steamer. Anon. *Textile Age 13*, 70-1 (Mar. 1949).

A water seal yarn steamer, that is reported to steam yarn to any degree in less time and with less operations, is briefly described.

Yarn products B 8

Artificial catgut. G. W. Colefax. Australian P. 131 729, Nov. 21, 1946.

A composition of ground rice gelatine, glycerine and sugar in water, is applied to a thread of silk, linen or the like and subsequently treated with formalin.

Yarn testing and numbering B 10

Electron micrometer measures yarn evenness. Anon. *Textile Industries 113*, 213 (Feb. 1949).

The electron micrometer which is designed to measure variations in the size of all types of fibers, yarns, or threads is briefly described. The

measurement is made without contact, eliminating any error due to distortion of the specimen.

You can use fiber tests to bolster yarn strength. Seth Carter. *Textile World 99*, 118-9, 245-8 (Apr. 1949).

Variations in yarn strength were found by one mill to follow variations in mean fiber length. Skein breaks were used on the yarn. USDA tests were used on the fibers. Analyses of test data on classified length, fiber-uniformity ratio, fiber fineness, percent of mature fibers and fiber strength failed to show correlation with skein break data. It is suggested that classers consider placing more emphasis on mean fiber lengths.
LCL

FABRIC PRODUCTION C

Yarn preparation C 1

Beam handling system provides safety and convenience. Anon. *Textile Industries 113*, 124 (Feb. 1949).

All beams in and out of the warp storage and into the slashers may be handled by a hand-propelled carrier with an electric hoist. The carrier travels on a Cleveland Tramrail transfer bridge and tracks.

40% return on spooler-warper. Anon. *Textile Industries 113*, 109 (Feb. 1949).

Advantages found from the use of a Barber-Colman spooler-warper are briefly noted.

Improving slasher production. Anon. *Am. Wool Cotton Reptr. 63*, 11-12, 67 (Apr. 7, 1949).

Greater production of slashers may be obtained by increasing the drying area. This may be accomplished by employing supplementary carrying rolls, by the addition of an extra cylinder, or by using a double headway. Various factors, such as the count of the yarn; area of contact of the warp with the drying cylinders, size density, components, and percentage, etc., affect production and must be studied to improve it.

Method and apparatus for slashing yarns. Robt. A. Smith & John S. Chaya (to Am. Viscose Corp.). USP 2 461 090, Feb. 8, 1949.

This invention describes a sizing arrangement for warp yarns, particularly those of the spun rayon type. Its primary object is to control the speed and tension of the yarns as they go through the size box and, therefore, avoid stretch while the yarns are wet. After leaving the section creels, the yarn goes through a 3-roll tension device, into

the size box under a submerged roll, over the top of a partially submerged roll and between that and a driven roll above the size box. This provides the first squeezing action on the yarn. This sequence may be repeated if desired. The yarn travels around this top squeeze roll to its top and through another nip at that point, over the top of a second squeeze roll, and thence to the drying mechanism. All squeeze rolls are driven. LCL

Modern rayon slashers facilitate processing. Randall Wilson. *Textile Industries 113,* 122-3 (Apr. 1949).

Improvements for rayon slashing, such as steam jackets in size boxes and kettles, etc., have greatly increased quality and production in sizing rayon warps. A description of modern rayon slashing equipment including stretch control, static eliminator, speed control, etc. is given.

Stainless steel size kettles. Anon. *Textile Age 13,* 72 (Mar. 1949).

A brief illustrated description of a new stainless-steel steam jacketed size kettle is noted.

Stretch meter improves slashing. Anon. *Textile Industries 113,* 120 (Feb. 1949).

Use of speed-ratio tachometers connected to a "Per cent stretch" meter automatically indicates the amount of stretch which occurs when yarns are treated with sizing solution.

Warp guide. Thos. E. Watson (to Heinz Electric Co.). USP 2 462 581, Feb. 22, 1949.

A new warp yarn guide comprises a 2-dent fork of sheet metal, the dents being bent in such a manner as to form an eye between them through which the thread passes. The guide thus provided is of the self-threading type.

Warp knitting machinery. Anon. *Am. Wool Cotton Reptr. 63,* 11, 14 (Mar. 3, 1949).

The preparation of warp for warp knitting machines is discussed, including creel construction, creel and cone arrangement of warp beamers, warp thread tensioning devices, stop motions for warpers, and the types of warping machines used.

Warp sizing material. Fair G. LaPiana (to Stein, Hall & Co.). USP 2 462 108, Feb. 22, 1949.

A new warp sizing formula is claimed to give the following advantages over conventional formulas: 1) The use of softeners such as sulfonated oils, fats, etc. is eliminated; 2) viscosity will remain uniform without gelling; 3) the mixture will not congeal even if allowed to cool to 60-70°F; 4) the

film strength is high, and the film is flexible but not brittle; 5) the warp is not impaired in elasticity. These advantages are claimed for a mixture made up of corn or wheat starch and the so-called waxy maize type of starch, which is an amylopectin type of starch. Waxy sorghum may also be used. Either one or both components may be modified by the usual methods. In using corn or wheat starch, these ingredients comprise 40 to 70% by weight of the total solids content. The remainder is made up of the waxy starch. LCL

Warp sizing nylon filament yarn. R. D. Bennett, Canadian Industries Ltd. *Can. Textile J. 66,* 50, 52, 54 (Jan. 7, 1949).

The use of polymethacrylic acid textile size (PMA) in relation to nylon filament yarn is discussed with formulas, mixing instructions and affect on yarns during weaving. PMA in experimental trials has been proven successful in slashing nylon continuous filament warps of many constructions and its performance has been the most satisfactory of the numerous sizing materials evaluated to date. As delivered, PMA is a free flowing, white powder containing 5-8% moisture by weight. It is readily water soluble, easy to apply and easily removed in scouring.

Weaving C 2

Aluminum heddle frames. Anon. *Textile Age 13,* 88 (Feb. 1949); *Modern Metals 5,* 20 (Mar. 1949).

Two new heddle frames are noted that are designed for use on high speed looms. They include a limited slide hook frame and a special drawing-in frame. The rigidity of the frames eliminates bowing, reduces yarn and heddle breakage, and assures free heddle movement.

Blister rayon crepe. Anon. *Am. Wool Cotton Reptr. 63,* 9-10, 15 (Mar. 3, 1949).

Rayon crepe fabrics woven with blister effect use hard-twisted yarns in combination with normal-twisted yarn, either "S" or "Z" twists, yarn deniers from fine to coarse, and yarns of different luster. A blister rayon crepe fabric is analyzed which contains 2 warps and 2 fillings. The face warp and filling are normal, while the back warp and filling are hard-twisted. The yarns are combined in a weave arrangement where stitching of the hard-twisted yarns occurs in both warp and filling directions.

Bobbin. Conrad W. Geier & Asher L. Joslin. USP 2 463 166, Mar. 1, 1949.

This invention provides a bobbin having a base portion, a cylindrical portion, and a yarn receiving portion, the base portion having rings thereabout whereby it can be inserted into a shuttle spring for holding the bobbin in position. Between the base portion and the yarn receiving portion is a cylindrical portion, which has the same diameter as the spaced rings around the butt or base of the bobbin which also has a metallic bushing in its butt portion whereby the butt portion and the cylindrical portion combined are heavier than the yarn receiving portion of the bobbin, together with the yarn thereon, so that the bobbin, when lying on a flat surface will have its butt portion heavy enough to sustain the weight of the yarn without the yarn touching an adjacent surface and chafing as a result of rubbing. The bobbin, also, is adapted to be used with a transfer arm, which has one point which engages the rings for transferring the bobbin, and also has an extension which instead of engaging the yarn during the transfer operation and damaging the same, engages the cylindrical intermediate portion of the bobbin, instead of the yarn, thus preventing the yarn from being damaged during a transfer operation.

Center selvedge in the weavings. Picanol. Indian P. 36 981 (through *J. Sci. Ind. Research (India)*).

Circular loom. H. J. Cooper. Australian P. 131 630, Apr. 24, 1946.

A circular loom has rotary members which revolve in a circular path and are rotated about their axes and serve to drive weft inserting members through the shed of the warp. The weft inserting members are wholly supported by rollers so related and arranged that the warp threads can pass between the weft inserting members and the supporting rollers without having their position or tension materially disturbed.

Conversion of ordinary loom to the automatic loom. J. Darbyshire. *J. Textile Inst. 40,* P197-P204 (Mar. 1949).

Driving mechanism for the lay of a loom. Otto Charles Mahler. French P. 911 686. *L'Industrie Textile 725,* 87 (Apr. 1947).

A pair of gears is used; one is non-circular and the other is either non-circular or off-center. These drive the lay so that it remains practically immobile during a large fraction of the cycle of the loom. These gears may be elliptical and identical in size and shape, with the axes of rotation at one of the 2 focuses of each elipse.

Electrically operated bobbin feeler. Horace L. Pratt. *Textile Industries 113,* 131, 133 (Apr. 1949).

An electrically-operated bobbin feeler that may be adapted to any conventional bobbin-changing loom is described and illustrated with a photograph and schematic sketches. A high degree of accuracy, reduction in seconds due to thin places, improved quality of product, and elimination of damaged quills are claimed for the device.

Filament spun basket cloth. Anon. *Am. Wool Cotton Reptr. 63,* 9-10 (May 5, 1949).

The effects that can be produced in the manufacture of rayon fabrics or other synthetic fabrics are discussed. A filament spun basket cloth containing acetate warp and an acetate and viscose blended ply yarn filling is analyzed.

High practical speeds claimed for Belgian automatic loom. Anon. *Silk J. Rayon World 25,* 42-3 (Feb. 1949); **Simplified mechanism is a feature of Belgian automatic loom.** Anon. *Textile Recorder 66,* 63-4 (Apr. 1949).

This is a brief illustrated description of the latest loom produced by the Metiers Automatiques "Picanol" S. A., Ypres. Belgium. The loom is adaptable for dobby and jacquard weaving; emphasis has been placed on mechanical simplicity and accessibility of working parts.

Improvement in looms for the continuous production of velvet carpets without weft or binding warp. Jean-Pierre Armand Bayle. French P. 911 229. *L'Industrie Textile 725,* 87 (Apr. 1947).

This is an improvement applied to a loom invented by the applicant, in which the warp pile is fed in with the aid of a vibrator-carrier. The very rapid alternating movements of this device prevent the loom from functioning at maximum efficiency. The vibrator is therefore replaced by 2 continuous belts carrying pins which are moved outward from the surfaces of the belt by an elongated lifting device through which rollers attached to the pins pass. The yarn is fed between these pins and is crimped into hair-pin-shaped loops by them.

Loom beat-up mechanism. Shinwell. Indian P. 35 774 (through *J. Sci. Ind. Research (India)*).

Loom fixing course V-VII. Arthur Abbott. *Textile Age 13,* 44, 46, 48-50, 52, 54, 56 (Jan. 1949); 44, 48-50 (Feb. 1949); 54-8 (Mar. 1949).

V—Maintenance of the Kellogg loom is discussed with details of the picking motion including drive gears, shaft, cam, etc. The parallel motion of the loom is also reviewed. VI—V-belt drives on the Kellogg loom are discussed with details of figuring V-belt life, the starting up point, overloads, and loss of traction. The 3-piece crankshaft, twin disc clutch, and friction adjustments are also discussed. Suggestions for maintenance of these parts are given. VII—Details of the lay sword, protector motion, take-up motion, and the take-up roll of the Kellogg loom are described and suggestions for fixing and maintaining these parts are presented. (See TTD: *5*, 766; *6*, 210-11 for Parts I-IV).

Loom fork filling motion. Geo. E. Clentimack (to Draper Corp.). USP 2 461 493, Feb. 8, 1949).

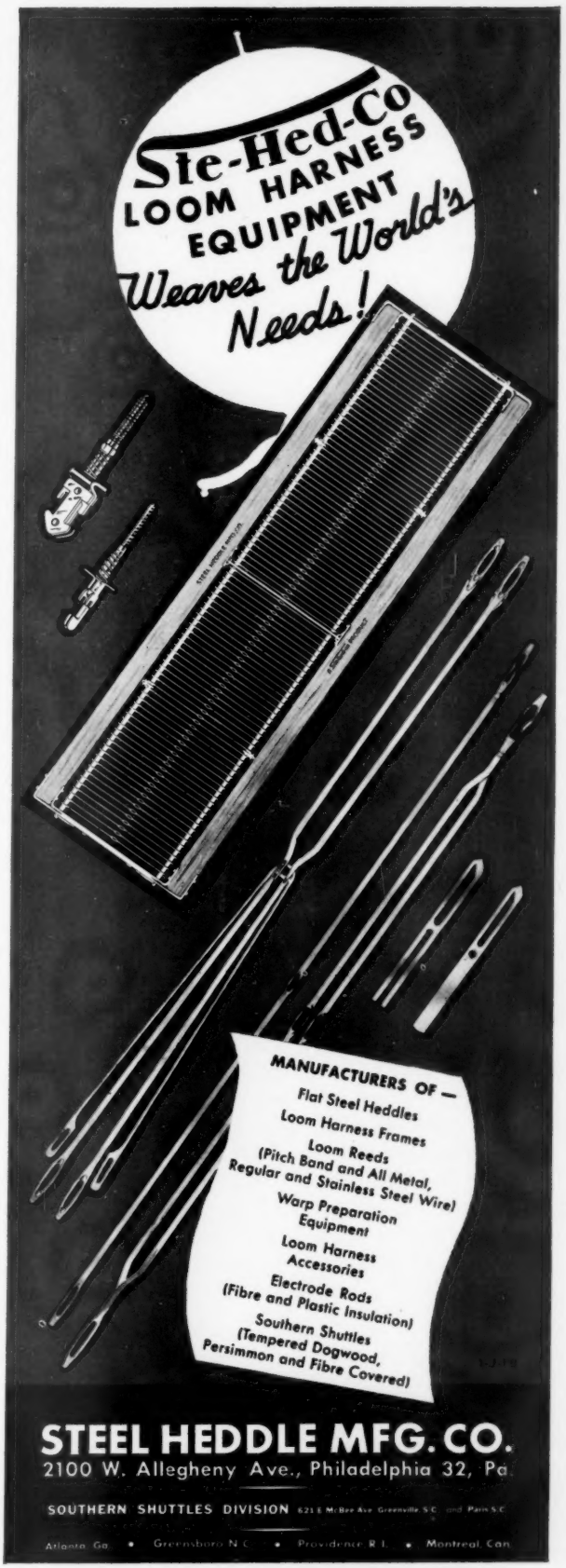
This invention provides a loom fork filling motion for detecting the absence of or a breakage in the filling yarn which utilizes a center filling fork, located in the center of the loom. By the use of electric magnets, the time lag necessary to operate the fork is shortened materially. Means are provided for adjusting the timing while the loom is in operation; it also permits more accurate timing of the fork-filling motion in relation to other motions of the loom. The fork may have a single, double, or triple tine.
JAW

Loom harness. John J. Kaufmann (to Steel Heddle Mfg. Co.). USP 2 461 496, Feb. 8, 1949.

The present invention provides an efficient and practical loom harness which is so constructed and arranged as to be utilizable in installations in which the warp is entered by means of automatic drawing-in machines and which prevents individual heddles from becoming accidentally disengaged from the supporting bars, and in which there will be no distortion of the heddle supporting bars when the same are subjected to the usual stresses in the weaving operations. There are no obstructions to the free passage of the heddles from one end of the frame to the other. The heddles may be readily removed from the heddle frame for any desired purpose, and the orderly arrangement of the same, when so removed, may be maintained by means of the bars.

Loom harness. John J. Kaufmann (to Steel Heddle Mfg. Co.). USP 2 461 497, Feb. 8, 1949.

This invention pertains to a loom harness which utilizes heddles having enlarged head portions which are slidably mounted in recesses or grooves



along the inner edges of the top and bottom rails, and provides a harness construction adapted to (1) use with automatic drawing in machines, and (2) which prevents the individual heddles from becoming accidentally disengaged from the grooves or recesses in which their ends are mounted. This harness also permits the heddles to be removed and replaced with ease. See USP 2 461 496.

Looms. Robinson. Indian P. 37 841 (through *J. Sci. Ind Research (India)*).

Monday morning start-ups easier. Anon. *Textile Industries 113,* 107 (Mar. 1949).

Results from experiments show that best weaving results are obtained at a relative humidity of 62-63% at 82° F. On week-end stops in the winter (at Pansy Weaving Mills, Inc.) heating is maintained at 75° without humidity, but the humidity is turned on 4 or 5 hours before the looms are started Monday morning. In the summer no heat is maintained, but the practice of humidifying before starting the looms is continued.

New shuttles for rayon. Anon. *Textile Industries 113,* 189 (Mar. 1949).

A brief illustrated description is given of the S7X center-tension eye shuttle that is claimed to solve reverse-wind rayon crepe filling trouble and to hold the thread in perfect alignment.

Plaid napped rayon. Anon. *Am. Wool Cotton Reptr. 63,* 9-10, 35 (Feb. 3, 1949).

A plaid napped rayon fabric is analyzed which is composed of coarse dyed spun yarns and woven in a checked pattern. All of the yarns used can be of the same composition, and as many different color effects as desired can be employed. A napped finish is given the fabric similar to many so-called flannels.

Product aids weaving and finishing vinylidene chloride fabrics. Anon. *Textile Industries 113,* 113 (Feb. 1949).

Aerotex Softener-H, when applied from a bath at the looms or on a warp beamer, is reported to prevent static electricity formation in weaving and finishing vinylidene chloride plastic fabrics.

Removing rust from loom reeds. Anon. *Textile Industries 113,* 115 (Feb. 1949).

Oakite Compound No. 36 is said to be very effective in cleaning and removing rust from loom reeds. It also discourages rusting of stored reeds.

Shuttle maintenance is essential in producing quality goods. B. L. Jaudon. *Textile Industries 113,* 119-20 (Mar. 1949).

Causes of shuttle troubles in weaving are discussed, and suggestions for correcting them are offered. The use of a shuttle repair kit by the loom fixer for making minor repairs is also discussed.

Sword mechanism for loom with more than one shuttle. M. J. Nanterme. French P. 910 902. *L'Industrie Textile 725,* 86-7 (Apr. 1947).

A mechanism consisting of a strong spring and a ratchet are attached to the lower end of the lay sword in such a way that, when it encounters an obstacle, the sword is released from the driving mechanism. When this happens, the worker has only to remove the cause of the accident and push back the sword by hand to lock it in operating position again.

Turkish towels. C. B. Cummins, Joshua Hoyle & & Sons Ltd. *Textile Mfr. 75,* 107-12, 137 (Mar. 1949).

This discussion of terry towels, includes loop formation, yarns, the terry motion, terry towel construction, types of loom, jacquard figured towels, and designing.

Wool and synthetic blends. Anon. *Am. Wool Cotton Reptr. 63,* 67, 69, 92 (Mar. 17, 1949).

A discussion of the production of gabardine fabrics composed of blended yarns is given, and a gabardine fabric containing 20% wool and 80% viscose is analyzed. The wool in the analyzed fabric is 64's with the length of the fiber up to 2 inches, averaging 3½ denier. The viscose fiber is 1¾ in. in length and 1½ denier in size.

Knitting C 3

Brush eliminates accumulation of lint on knitting machine cylinders. Anon. *Textile Industries 113,* 179 (Feb. 1949).

Disc-shaped brushes are built into new rib circular knitting machines that are designed to continuously clean the tops of the cylinders. Lint accumulation in the working parts is thus eliminated.

Circular knitting machine. Frederick Staples (to (Alfred Bray & Sons Ltd.). USP 2 461 851, Feb. 15, 1949.

In a well-known construction of a circular knitting machine, of the rotating cylinder type, the drive to the cylinder is through a pair of relatively large diameter bevel gears of which the driven gear is fast and coaxial with the cylinder while the driving bevel gear is fast with a smaller

bevel gear driving to a bevel gear at the lower end of a vertical shaft. The latter has a bevel gear at its upper end to mesh with a bevel gear on a horizontal shaft carried by the jack bracket, the drive from the horizontal shaft being for the dial. According to this invention, the drive to the dial includes a gear fast and coaxial with the cylinder and in mesh with a gear fast and coaxial with the usual vertical shaft carrying at its upper end a bevel gear to mesh with a bevel gear on the horizontal shaft carried by the jack bracket; the cylinder, driven through a bevel gear pair, has a coaxial spur gear, fast with it, which drives to a spur gear on the lower end of the said vertical shaft. Fine angular-adjustment means is provided between the said vertical shaft and the bevel gear at its upper end. The fine adjustment means may take the form of a projection on the hub of the bevel gear, screw-threaded means bearing upon opposite sides of the projection being engaged with a part fast with the vertical shaft.

Device controls yarn on Komets. Anon. *Textile Industries 113*, 193 (Feb. 1949).

Yarn taken by a Komet knitting machine may be controlled by the R. O. P. apparatus. This apparatus compensates for variables, such as variation in yarn tension and variation in the nature of the yarn, which may modify the feed.

Good handling of yarn pays. *Textile World 99*, 93-105 (Apr. 1949).

This is a series of articles dealing with the handling of knitting yarns. The papers included are: "Full-fashioned mills experiment with yarns," H. B. LeFaux; "Handling of wool yarn affects feel of fabric," Walter A. Simond; "Press-off and stops reduced by yarn control," Chas. W. Arrowood; "Circular-hosiery mill maintains quality of yarn," E. Dalton White; "Tricot handling system is mill designed," C. Mallard Bowden; "Outerwear mills stress handling and feeding," Albert M. Young, Jr.; "Outerwear knitter emphasizes yarn and feeding," E. Dalton White.

High speed tricot machine. Anon. *Am. Wool Cotton Reptr. 63*, 25, 27 (Apr. 21, 1949).

Tricot knitting machines are discussed and some details of the size of the machines, the cams, warp release and brakes, take-up roller, and sinker lead are given. Features and improvements on the tricot machines are also described, and the use of color on the various parts to make operatives safety conscious is noted.

Improved high-speed knitters. Anon. *Am. Wool Cotton Reptr. 63*, 43, 45 (Apr. 21, 1949).

Descriptions of the Reiner 60-gauge, 4-section full-fashioned twin knitter, the Reiner 3-bar tricot machine, and the Reiner simplex machine are given, with some details of their outstanding features.

Knitting Arts Exhibition. Anon. *Textile Age 13*, 83-6, 88-90, 95-8, 100-2, 104-6, 108-10, 112-14, 116-19, (Apr. 1949); *Am. Wool Cotton Reptr. 63*, 18-19, 21, 23, 47, 49, 51, 53, 55, 57-9 (Apr. 21, 1949); *Textile Industries 113*, 155, 157, 159, 161, 163, 165, 167-8, 171, 173, 175 (Apr. 1949).

An alphabetical listing of all exhibitors, together with the products shown by each at the Knitting Arts Exhibition of 1949, is given.

Knitting machine. Geo. O. Young (to Vanity Fair Mills, Inc.). USP 2 461 583, Feb. 15, 1949.

In knitting machines of the flat or tricot type, this invention provides: (1) improved means for adjusting the eccentrics so as to give the proper movements to the needles, tongues and sinkers; (2) a support for the main eccentric shaft so that it can carry the weight imposed upon it without vibration or bending; (3) a sinker bar which has an oscillating movement instead of a rectilinear or reciprocating movement; (4) elimination of reciprocating rods or shafts for supporting the needle bar, tongue bar and sinker bars; (5) for the weight of the needle bar, tongue bar, and sinker bars to be carried entirely by the main eccentric shaft of the machine.

Knitting machine progress. Anon. *Am. Wool Cotton Reptr. 63*, 12-14, 29 (Apr. 21, 1949).

Developments in new knitting machines and attachments are reviewed.

Links-and-links knitted announced. Anon. *Am. Wool Cotton Reptr. 63*, 57 (Feb. 24, 1949); **New machinery for infant's hosiery.** Anon. *Textile Age 13*, 64-5 (Mar. 1949).

Features of a new type Komet links-and-links machine for knitting patterns in infant's hosiery are described. The machine is 29.7 gauge with 160 needles that are 54 gauge. Recent improvement in the larger size Komets have been incorporated in this new machine which will be ready for delivery about the middle of the year.

New electric stop motions for circular machines. Anon. *Textile Industries 113*, 163 (Mar. 1949).

The Wesco "400", a new electric stop motion, and its operation are described and graphically illustrated.

New fancy rib knitting machine announced by

Brinton. Anon. *Textile Industries 113,* 187 (Feb. 1949).

A brief illustrated description of a new ribber that is designed to produce fancy true rib cuffs for children's anklets and hosiery is given. The machine produces a rib top with Jacquard designs either by wrapping or transposition of design stitch.

New nylon yarns help knitters. Ernest H. Ellis, E. I. du Pont de Nemours & Co. *Am. Wool Cotton Reptr. 63,* 16, 31 (Apr. 21, 1949).

The wide range of nylon yarns has increased its use in the knitting industry. The use of nylon in hosiery, half-hose, underwear, and outerwear is discussed.

Preventing trapped latches. Don. Numan. *Textile Industries 113,* 153, 155 (Mar. 1949).

Broken latches show up in the pattern right after the needle has been transferred to the top cylinder. Causes and preventive measures for trapped latches are discussed.

Progress is knitting machinery. Clarkson E. Johnson, North Carolina State College. *Textile Age 13,* 28, 32, 34, 39, 42 (Apr. 1949).

Postwar developments in hosiery and knit fabrics and the machines on which they are produced are summarized. Included in the discussion are full-fashioned hosiery machines, circular machines, half-hose machines, tricot machines, etc. A new pre-boarding system is also described.

Special purpose tools for hosiery machine fixers. Ernest Bridges. *Textile Industries 113,* 147, 149 (Apr. 1949).

A stitch cam gauge, which is especially useful in fitting a pair of new stitch cams or for balancing up old ones, is described and illustrated. It can be used on practically all models of Scott and Williams circular knitting machines except Model B-3.

Thread guides last 15 times longer. Anon. *Textile Industries 113,* 185 (Feb. 1949).

The use of harder and longer wearing thread guides for knitting nylon monofilament full-fashioned hosiery is briefly noted.

Training of looper operators. W. F. Bailey Triangle Hosiery Co. *Textile Industries 113,* 143, 145 (Apr. 1949).

A school for training new employees in the operation of looping machines will result in more efficient and standardized looping methods. Production is not interrupted while the employees learn, and the labor turnover is claimed to be reduced. The looping procedure is described.

Treating and handling of nylon hosiery to prevent snagging during manufacture. A. J. Olson, Phoenix Hosiery Co. *Am. Dyestuff Reptr. 38,* 60-1 (Jan. 24, 1949).

Precautions to be observed in handling nylon hosiery are discussed. A protective treatment undergoing experimental study is the coating of the leg portion of the hose with Silica Sol, which is a colloidal dispersion of sub-microscopic silica particles in water. It is applied directly to the hose after it leaves the knitter, before looping and seaming, and affords some degree of protection by its tendency to reduce slipping.

Two new attachments for Kidde knitted. Anon. *Textile Industries 113,* 189-90 (Feb. 1949).

The "Stechkamm" or sinker bar and "Schlagblech" or chopper are 2 new attachments for the Kidde warp knitting machine. Descriptions and illustrations of these new attachments are given.

Warp knitting machine. Fritz Lambach. USP 2 461 550, Feb. 15, 1949.

In warp knitting machines wherein reciprocable sinkers are arranged for holding down the fabric when the needles are moved upwardly, this invention provides means for shielding the free ends of the filler sinkers when they are in their extreme backward position so as to prevent an undesired engagement between the filler sinkers and the filler thread carrier or carriers when the latter are moved for laying filler thread.

Welt turners aid production. Anon. *Textile Industries 113,* 179 (Feb. 1949).

The use of automatic welt turners is claimed to increase production 30% on conventional stockings and 20% on round heel stockings. They also give a savings in direct labor cost.

Yarn feeding and tensioning machnisms. H. Wignall. *Textile Mfr. 75,* 117-9 (Mar. 1949).

This is a review of the problems encountered in yarn feeding on seamless hose machines, and a detailed description of the mechanisms involved.

Yarn tensioning device. Emil Richter. USP 2 462 288, Feb. 22, 1949.

An improved yarn tensioning device, for insuring even tension of the yarn as it is laid across the noses of the sinkers and dividers of knitting machines, comprises a pair of open-coiled members adapted to be shifted to present their convolutions in interjacent relation to provide a common passage for a length of yarn. One coil is mounted on a bracket in a fixed position and the other is guided for movement in a plane common

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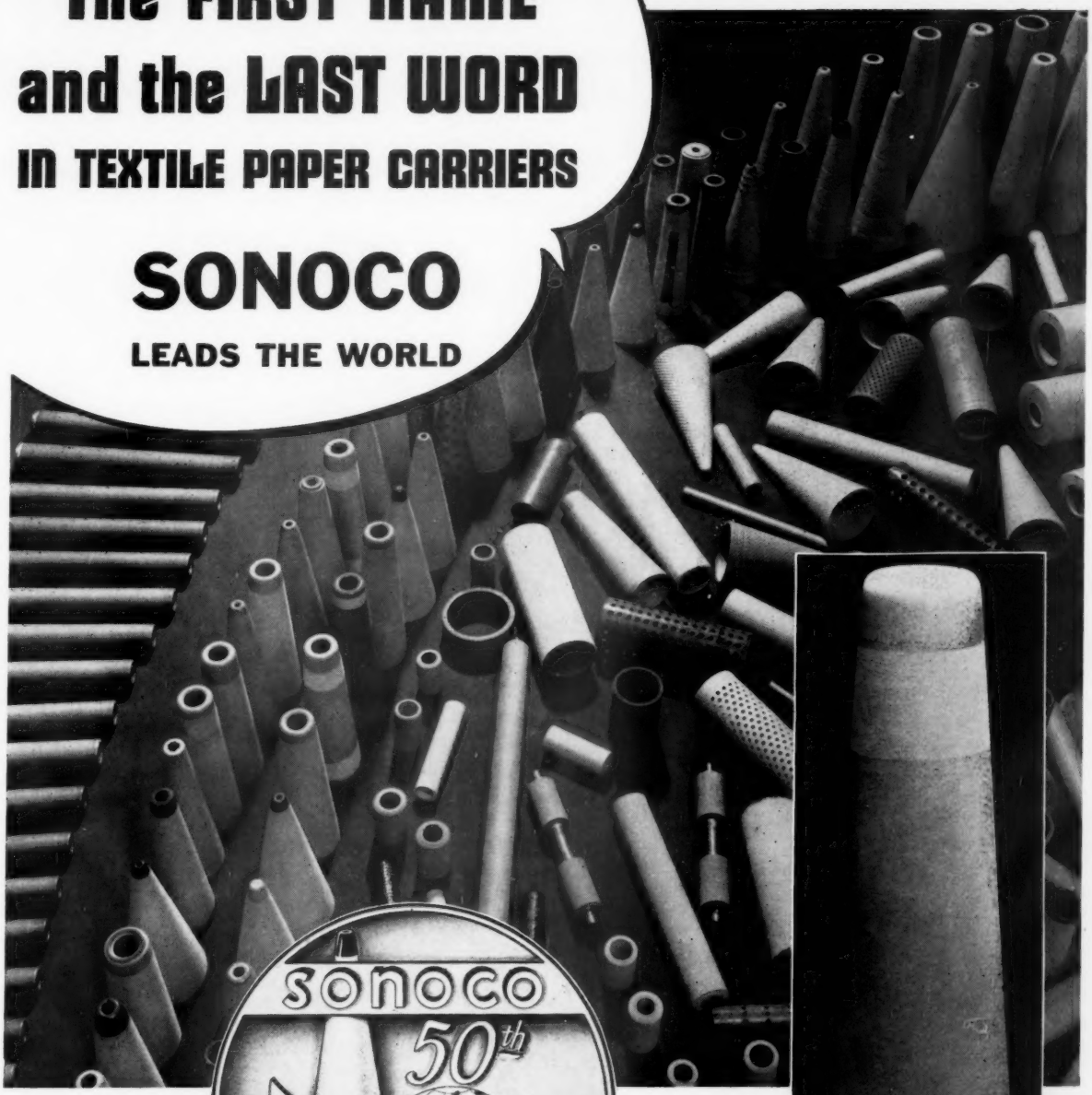

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Special fabrics C 4

Apparatus for making pile fabrics. Victor A. Victor. USP 2 461 860, Feb. 15, 1949.

This invention is an improvement upon USP 2 358 368, Sept. 19, 1944, and provides an apparatus for forming pile fabric which comprises a rotating drum from which extend radially a number of elements which grasp, in step-by-step rotation of the drum, the leading edge of a line of fiber elements severed from their source of supply, and then transfer the severed predetermined length of fiber elements to pile-forming station where the fibers are embedded into the cementitious coating spread uniformly upon a flexible backing.

Cutting fabrics into uniform strips for fabrication of "pseudo-ribbons." Al. Xanderne. *L'Industrie Textile 725,* 78-81 (Apr. 1947); *in French.*

A process and apparatus are described and illustrated for cutting fabrics made of thermoplastic materials into strips and consolidating the cut edges by heating and pressing them with rollers. Overheating is prevented by means of a thermostatic control. The ribbons thus produced have edges which do not ravel when washed in hot or cold water and which have the same color as the original fabric, but are somewhat thinner.

Electrically heated fabric. John Daly (to Valdale Co., Inc.). USP 2 462 847, Mar. 1, 1949.

A method of manufacturing an electrically heated fabric comprises forming a fabric of warp and weft threads, floating predetermined weft threads to form rows of loops, providing pulleys at opposite ends of each of the rows and entraining a resistance element over the pulleys and through the loops.

Fabric. Edw. J. Cogovan (to Mohawk Carpet Mills, Inc.). USP 2 456 922, Dec. 21, 1948.

A fabric suitable for floor coverings is made by applying loosely twisted yarns longitudinally on a flexible backing sheet which has been coated with a pressure-sensitive adhesive. The yarns are placed in close side-by-side relationship and, upon the repeated application of pressure, the yarns are flattened and pressed into the adhesive so that some of the adhesive penetrates the yarn. The fabric is then rolled up and cured. Production cost is low and the new fabric has wearing qualities superior to those of low-cost pile fabrics. It is also cheaper.

Fabric made with multiple cloth layers and method of making. Philibert Jourdan. French P. 911 656. *L'Industrie Textile* No. 725, 86 (Apr. 1947).

Multiple fabrics are produced by removing the cutting edge used to separate pile fabrics, such as velvet, produced by interweaving a third weft between 2 backing fabrics. The relatively thick padded fabric thus produced is suitable for making warm articles such as bed clothing, clothing for aviators, hygienic underwear, gloves, upholstery, surgical dressings, cloth for stretchers, etc. The loom can also be operated so that the third warp does not form a pile fabric but simply connects the 2 fabrics. The fabric thus produced is strong and can be used for sailor's hammocks, sails, linings for shoes, hangings, furniture, camping equipment, oil cloth, for making hats, lining for clothing, etc.

"Lantuck"—new bonded fabric. Anon. *Am. Dyestuff Reptr. 38,* 242 (Mar. 7, 1949).

"Lantuck", a new type of bonded fabric being produced by the West Point Mfg. Co. at a new mill unit in Fairfax, Ala., has almost completely random distribution of fibers which gives the material equal strength in every direction. The development of Lantuck was undertaken to provide the plastic laminating industry with a bonded fabric of balanced strength to be used as a filler. The bonding agent used for Lantuck is varied in order to use the agent best suited for each use. The new material is also promising as an interlining in cold weather clothing.

Multi-shuttle ribbon loom. Anon. *Textile Industries 113,* 195, 197 (Mar. 1949).

A brief description of a narrow fabric loom that accommodates sheet warps instead of tape warps is presented.

New rayon ribbon. Anon. *Textile Age 13,* 120 (Feb. 1949).

Texray, a new rayon ribbon, is made by laminating a rayon warp to an acetate film. The appearance is the same as a woven fabric, but with added luster.

Pile fabrics, in particular the manufacture of carpets, rugs, plushes and similar articles. Fuhrhop & Issum. Indian P. 37 349 (through *J. Sci. Ind. Research (India)*).

Pile fabrics. Fuhrhop & Issum. Indian P. 37 894 (through *J. Sci. Ind. Research (India)*).

Radio frequency heater aids production of electric blankets. Anon. *Textile Industries 113*, 123 (Feb. 1949).

A sealing fixture combined with a radio frequency generator is being used to seal the thermostats in electric blankets. Operation of the sealer is briefly described.

Three-quarter edge for fabrics. A. Thompson. *Silk J. Rayon World 25*, 48-9 (Dec. 1948).

This is a brief discussion of the design and weavnig of 3-quarter edging.

Woven monofilaments; manufacture and applications of P. V. C. webbings. Anon. *Brit. Plastics 21*, 71-6 (Feb. 1949).

A wide variety of elastic webbings ranging from ½ to 20 in. in width are being made of soft and rigid extruded p.v.c. (polyvinyl chlorine) monofilaments on Clutsom shuttleless looms. Use of p.v.c. monofilaments for this purpose resulted from the wartime shortage of natural fiber. This account includes brief descriptions of the weaving and fabricating processes and the properties and applications of p.v.c. webbings.

Zip fastener tapes. A. Thompson. *Silk J. Rayon World 25*, 62-3, 65 (Feb. 1949).

The requirements for tape used for zipper fasteners are noted and the design and construction of such tapes is described in detail.

Inspection and testing C 5

Fundamental study of fabric properties. E. Vernon Lewis, E. I. du Pont de Nemours & Co. *Can. Textile J. 66*, 42-4, 46 (Mar. 4, 1949); *Papers Am. Assn. Textile Technologists 4*, 84-93 (Mar. 1949); **Taffetas, twills and satins offer future possibilities.** *Am. Wool Cotton Reptr. 63*, 19, 93 (Mar. 17, 1949).

This is an account of work begun 3 years ago on a fundamental study of fabric properties. The program was centered on the construction of small samples of fabrics which would make possible the evaluation of the properties of new fibers in fabric form. The core of the problem was to resolve the aesthetic properties of drape, hand, and creasing behavior down to their underlying physical components. The methods used for measuring firmness of hand, creasing behavior, and crease recovery are described. As a result of this work, an assay plan was evolved in which different types of fabrics were used to study different properties, e.g., taffetas to bring out surface property contributions, twills to emphasize internal property contributions, and satins to form a sort of average and to display tactile effects.

Inspection lighting for the dry-cleaning industry. J. F. Finn, Detroit Edison Co. *Illuminating Engineering 44*, 218-20 (Apr. 1949).

This paper describes the lighting arrangement which permitted the detection of faint spots on garments and which may be of interest for other textile inspection uses. The optimum lighting level on the surface inspected was found to be 150 footcandles, and the best source proved to be a combination of two 85-watt fluorescent lamps in an industrial reflector with a 150-watt PAR-38 floodlamp equipped with a concentric louvre shield. Each illuminant provided about 75 footcandles, and the color of the light mixture was such that spots were detectable on any color of material handled.

New examining machine. Anon. *Textile Age 13*, 60-1 (Jan. 1949).

A new type examining machine for inspecting fabric that provides a surface wind take-up unit is briefly discussed and illustrated.

Two new devices developed at Institute of Textile Technology. Anon. *Am. Wool Cotton Reptr. 63*, 87-8 (Apr. 21, 1949).

A new cloth inspection machine and a new uniformity meter are described. The cloth inspection machine permits the inspector to view a stationary image of rapidly-moving cloth with increased efficiency and reduced eye fatigue. The uniformity meter measures and makes a permanent record of the uniformity of yarn, roving, sliver, etc. The material is measured in terms of weight per unit of length.

Fabric applications C 6

Bed sheet construction. Bertha Berman. USP 2 462 156, Feb. 22, 1948.

A bed sheet construction is provided which, by means of corner flaps and snap fasteners, permits the sheet to snugly fit and smoothly overlie the top and vertical sides of a mattress. In its unfolded condition, the sheet lends itself to laundering operations.

Nylon carpets for aircraft. Anon. *Textile Industries 113*, 133 (Apr. 1949).

An all-nylon pile fabric, "Airborne", is being used in carpeting for aircraft. It is reported to be light in weight, resistant to wear, dimensionally

stable, color fast, quick drying, etc. It closely resembles wool in appearance and feel.

Textiles in the electrical industry. F. S. Mapes, Gen. Electric Co. *Papers Am. Assn. Textile Technologists 4*, 71-4 (Mar. 1949).

The use of textiles in the electrical industry is reviewed and it is pointed out that a decrease in the amount of textiles consumed will result unless materials are developed which will be of more service. It is suggested that a synthetic sizing be developed to replace the starch sizes which will be more compatible with insulating varnishes. Another need cited is for a bias cloth that has consistently controlled stretch.

STANDARD FINISHING D

Current developments in dyeing and finishing. L. S. Thompson, Gen. Dyestuff Corp. *Am. Dyestuff Reptr. 38*, 6-8, 32 (Jan. 10, 1949).

This is a review of new processing methods in dyeing and finishing and includes desizing, boil-off units, bleaching, dyeing, stabilization of rayon piece goods, and machinery.

Find new method for piecing and finishing goods. Anon. *Am. Wool Cotton Reptr. 63*, 11, 16 (Mar. 24, 1949).

Details of tests on both cotton and woolen goods, in which "Scotch-Weld" bonding film was used to splice fabrics, are given. Results indicate the practicality of splicing fabrics for continuous bleaching, dyeing, and finishing.

Function of a laboratory in the evaluation of textile finishes. Alton A. Cook, Arkansas Co. *Am. Dyestuff Reptr. 38*, 313-6 (Apr. 4, 1949).

This discussion is directed primarily to the general methods of evaluation of softeners. It is pointed out that before any finishing compound is actually used it should be tested in the laboratory. The methods available for this work are limited and considerable improvement in laboratory techniques and methods would make the laboratory more useful in this field.

Latest developments in the dyeing and finishing of synthetic fibers. W. G. Helmus. *Am. Dyestuff Reptr. 38*, 62-4, 84 (Jan. 24, 1949).

Modern trends in [cotton] piece-goods preparation, dyeing and finishing. C. Norris Rabold, The Erwin Cotton Mills Co. *Am. Dyestuff Reptr. 38*, 67-8, 77 (Jan. 24, 1949).

Problems in the wet finishing of woolens and worsteds. H. L. Hallas. *Textile Recorder 66*, 72-3 (Apr. 1949).

Practical suggestions are given for the prevention of faults occurring during wet processing.

Some roller covering problems in finishing, etc., processes. A Technical Correspondent. *Textile Mfr. 75*, 142-4 (Mar. 1949).

This is a discussion of some of the problems which arise in scouring, sizing, dyeing, and printing processes on cotton and rayon fabrics.

Bleaching of animal fibers by modern methods. M. H. Wilkinson. *J. Soc. Dyers Colourists 64*, 8-13 (Jan. 1948).

Methods of bleaching wool and silk are reviewed and a number of suggestions, based on actual experience, are given for several bleaching processes.

Bleaching of cellulosic matter. Rudolf Bloch, Kurt Goldschmid, Isaac Schnerb & Paul Goldschmidt. USP 2 461 105, Feb. 8, 1949.

A water-soluble bromide, a mixture of bromide and hypobromide, or liquid bromine are added to the hypochlorite generally used for bleaching, and the pH is controlled to a value between 7 and 8.2. It is stated that the addition of bromine or its compounds renders the available chlorine more active, accelerates the bleaching operation, and reduces the concentration necessary for bleaching. The available chlorine is also more completely used up, and its initial concentration may be reduced, thus decreasing the danger of tendering the material. A high degree of whiteness can be obtained in a single operation. The kiering operation can also be shortened. The process is especially applicable to the bleaching of wood pulp.

Butterworth announces new saturator and squeezer. Anon. *Am. Wool Cotton Reptr. 63*, 42 (Apr. 21, 1949).

A new horizontal rope saturator and a new rope squeezer, that are reported to operate at higher speeds and give better bleaching and better handling, are briefly noted.

Butterworth junior bleaching unit. Anon. *Am. Wool Cotton Reptr. 63*, 32 (May 5, 1949).

Features of a new single-stage bleaching unit, designed for high-speed continuous bleaching where production does not warrant a full-sized bleaching range, are given.

Fluorescent bleaching. A. Landolt, Ciba Ltd. *Am. Dyestuff Reptr. 38*, 353-6 (Apr. 18, 1949).

Two new "fluorescent bleaching" agents are described, one of which is suitable for "bleaching"

cotton, the other for "bleaching" wool, nylon, natural silk and acetate rayon. The affinity of the 2 products for the fibers under varying conditions was illustrated by means of curves indicating the degree of brightening attained. By brightening is meant the fluorescent light emitted in the visible spectrum and reflected by the treated goods. The "fluorescent bleaching" agents known today belong to different chemical groups. They are mostly colorless substances which show a bluish or violet fluorescence in solution. Their one main difference from fluorescent dyestuffs lies in their having no color of their own. "Fluorescent bleaching" agents are of great importance for producing a pure white effect on textile and paper fibers, since they make it possible to shorten the methods of bleaching hitherto employed without exerting any detrimental effect on the mechanical properties of the fibers.

AN INTRODUCTION TO TEXTILE BLEACHING. J. T. Marsh. New York, John Wiley & Sons, Inc. 512 p. Price: $6.50.

"An Introduction to Textile Bleaching" by J. T. Marsh is concerned with the occurrence and properties of the various textile fibers and the methods adopted for their purification. The book is divided into 6 parts: the textile fibers, wetting and detergency, scouring and bleaching of cellulosic fibers, scouring bleaching of animal fibers, the drying of textiles, and tests for damage. Contains numerous illustrations, tables, and a bibliography of bleaching.—*Textile Industries.*

Aqualized gums. Anon. *Textile Age 13,* 67 (Jan. 1949).

Aqualized gums including gum tragacanth, locust bean, and Karaya, which can be dissolved in a matter of minutes, are briefly discussed.

Effect of temperatures on finishing compounds. Arthur H. Noble, Jr. Arnold, Hoffman & Co., Inc. *Am. Dyestuff Reptr. 38,* 115-21 (Feb. 7, 1949).

See TTD: *6,* 131.

Flexol plasticizer. Anon. *Textile Age 13,* 76 (Mar. 1949).

Flexol plasticizer DOP is recommended for use with vinyl resins and in nitrocellulose finishes. It is available in 2 grades including one for electrical uses and the other for non-electrical uses.

Fungal amylases suitable for use in the food, pharmaceutical and textile industries. Jayagopal Rau & Screenvisan. Indian P. 37 843 (through *J. Sci. Ind. Research (India)*).

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New Rohm and Haas textile chemicals. Anon. *Textile Age 12,* 76, 78-9 (Mar. 1949).

Six new chemicals, derived from the OXO process, that may be used as mildewproofing agents, softeners, lubricants, etc., include Nonanoic acid, Nonylamine, Nonyl aldehyde, cyanohydrin, Alpha-hydroxydecanoic acid, Octadecenyl aldehyde, and Octadecyl aclohol.

Non-ionic surface active agents. Jack Dollinger, Glyco Products Co. *Soap & Sanitary Chemicals 25,* 37-9 (Jan. 1949).

This is a discussion of the physical properties of glycol fatty acid esters which are used by the textile industry as lubricants and emulsifying agents for the oils used in textile fiber lubrication, as dispersing agents in delustrant formulas, as penetrating agents and dye assistants, and as auxiliary detergents in scouring and washing operations. Data on a number of products are given in a table.

Properties of wool fabrics enhanced by using demineralized water. Anon. *Textile Industries 113,* 114-15 (Feb. 1949).

It is reported that the use of water treated by a Filt-R-Stil demineralizer in the pre-shrinking of woolens gives a softer handle and greater pre-shrinkage, eliminates formula changes, and simplifies maintenance of pre-shrinking equipment.

Surface active agent. Anon. *Textile Age 13,* 96 (Feb. 1949).

Hartofol C, a concentrated alkylated sulfonate, is recommended as a wetting agent, scouring agent, etc. in processes such as dyeing, printing, raw wool scouring, etc. Not only is it an excellent wetting agent, but it also shows good detergency and sudsing action.

Surface active agents in aqueous and non-aqueous media. H. Lomas, The Geigy Co. *J. Soc. Chem. Industry 68,* 37-40 (Feb. 1949).

In this paper, agents which affect the properties of solid-liquid interfaces are discussed, with emphasis on flocculation and deflocculation of dispersions. Some industrial applications, the mode of action of wetting and dispersing agents, chemical types of surface-active agents, methods of investigation of dispersion problems, and recent work on the fundamental theory involved are presented briefly. Textile cases mentioned include: the necessity of a high degree of dispersion of pigments for printing textiles or for incorporation in synthetic fibers before spinning, the analogy between preparation of dispersions and detergent action, the use of cationic agents (amines and quaternary ammonium salts) to promote substantivity in dyeing, the use of non-ionic agents to prevent scum formation in dye baths containing electrolytes, and the effect of added salts in modifying dispersing of flocculating action.

Tests of wool scouring detergents. E. A. Leonard, Alexander Smith & Sons Carpet Co. *Am. Wool Cotton Reptr. 63,* 22 (Feb. 3, 1949).

Results of tests on the effectiveness of 15 different detergents in the scouring of raw wool are briefly summarized. It was found that non-ionic polyethylene oxide condensate and tall oil soap plus soda ash are economically the most efficient.

Wetting agent. Anon. *Textile Age 13,* 67 (Jan. 1949).

Santomerse 30-X, a new liquid wetting agent and detergent of the alkyl aryl type is a pale yellow viscous fluid that is resistant to decomposition by strong acids or alkalies.

Apparatus for drying granular thread and fibrous materials. Aktiebolaget. Indian P. 38 278 (through *J. Sci. Ind. Research (India)*).

"Bullet" padders. Anon. *Textile Age 13,* 136, 138 (Apr. 1949).

Features of the newly-designed 2-roll and 3-roll padders that are reported to be more flexible and more interchangeable than previous models are described.

Cloth finishing, improved nap removing. Anon. *Am. Wool Cotton Reptr. 63,* 14-15, 55 (Feb. 24, 1949).

The use of open gas burners of increased width has increased the productive capacity of gas singeing in removing nap on cloth. A superior singe is obtained, and the operating costs are reduced. Various wide gas burner installations are discussed with illustrations given of some typical installations.

Cloth opening range. Anon. *Textile Age 13,* 66 (Mar. 1949).

A new cloth opening range for use on cotton, rayon, and blend fabrics is designed for continuous operation and is controlled by a beam of light. It is claimed to eliminate all possible fabric distortion or stretch.

Controlled moisture content. Paul M. Platzman, Textile Industries. *Textile Industries 113,* 149, 151, 153-4 (Feb. 1949).

The operation of the Drimeter, an electronic device for measuring moisture regain of goods delivered from the tenter frame, is described. The Drimeter increases production, improves quality, and reduces processing costs.

Gas-burning infrared generator solves heating problem. Anon. *Textile Industries 113,* 124 (Feb. 1949).

Installation of a gas-burning infrared generator on a festoon type drier is reported to have increased production and reduced operating costs.

High speed tenter. Anon. *Textile Age 13,* 58 (Jan. 1949).

A new high speed tenter frame which features a completely enclosed delivery end to keep cloth clean and prevent fouling of drive shaft and drive heads is noted.

Hydraulic calender. Anon. *Textile Age 13,* 63-4 (Jan. 1949).

Glazed finishes for fabrics can be obtained by the use of a new 3-roll hydraulic friction calender. The calender can also be used as a rolling calender to finish rayon fabrics.

New carbonizing drier for wool piece goods. Anon. *Textile Industries 113,* 195 (Mar. 1949).

A new bottom entry pin tenter drier is described with an accompanying diagrammatic sketch. Advantages claimed for this drier include reduced drying and baking time, uniform drying and baking, elimination of streaks due to pull, elimination of warp-wise stretch, etc. The drier has been developed for carbonizing woolen piece goods.

New pin stenter cuts processing time, improves finishing. Anon. *Silk J. Rayon World 25,* 38-9 (Feb. 1949).

See TTD: *6,*

New sewing machine for heavy seaming. Anon. *Textile Age 13,* 65-6 (Mar. 1949).

A sewing machine for handling the seaming work on upholstery and other heavy materials is briefly noted.

New twin mangle. Anon. *Textile Industries 113,* 207 (Mar. 1949).

A twin mangle that combines the water mangle and the starch mangle as one unit is briefly noted.

Three-tank open width processing machine. Anon. *Textile Age 13,* 66 (Mar. 1949).

A brief illustrated description is given of a newly-designed, three-tank open width processing machine.

Process and apparatus for drying textiles. Paul L. & Fred T. Miller (to United Merchants & Mfrs., Inc.). USP 2 456 301, Dec. 14, 1948.

In drying large quantities of wet fabric in the form of elongated sheets of predetermined widths, the material is first passed close to a source of concentrated heat, preferably radiant, which is sufficient to cause an instantaneous volatilization of at least a substantial part of the water in the fabric. This is done at a high speed so that the fabric is not damaged. The drying is completed by a more prolonged exposure of the fabric to heated gases or vapors, such as hot combustion gases mixed with steam.
CAC

Singeing device for textile fabrics and the like. Francis M. Crossman. USP 2 462 166, Feb. 22, 1949.

A fabric-singeing device comprises 2 gas-burning infrared generators, one on each side of the fabric, in connection with refractory material which is curved to direct the flames parallel to the cloth. At high temperatures, the infrared rays are directed perpendicularly toward the cloth so that the waves meet and penetrate the interstices of the cloth. The projecting flame of the special burner burns away the scorched fuzz on both sides of the cloth simultaneously. This device may be adjusted to singe both heavy and light fabrics; it also eliminates the need for water cooled rolls, and suction devices for the removal of the fuzz.

Sizing and laundering of fibrous materials. Societe Sandor. Indian P. 27 322 (through *J. Sci. Ind. Research (India)*).

Some aspects of the drying and heating of textiles. Part III—The migration of solvents and solutes during drying. J. M. Preston & J. C. Chen. *J. Soc. Dyers Colourists 64,* 60-4 (Feb. 1948).

The migration of moisture and dissolved substances during drying operations has been investigated. Similar migration is found to occur during the production of "fused" semi-stiff collars where liquids other than water are used. A simple mechanism is proposed to explain the migration phenomena. (For Parts I-II, see TTD: *4,* 115).

Tentering and like machine for the treatment of cloth and other material. Dungler. Indian P. 35 597 (through *J. Sci. Ind. Research (India)*).

Element "X" in nylon. A. W. Staudt, E. I. du

Pont de Nemours & Co. *Am. Dyestuff Reptr. 38,* 339-42 (Apr. 18, 1949).

Element "X"—the heat-setting of nylon—is discussed and the principles and design of heat-setting machines are described briefly.

Heat-setting machine. Anon. *Textile Age 13,* 143-4 (Apr. 1949).

A new heat-setting machine which can be used for the finest sheer fabrics or the heaviest weight duck or nylon, acetate, Orlon, etc. is gas gas fired, and the setting is done by high velocity dry heat. Improved resilience, crease resistance, and dimensional stability of fabrics are claimed from use of this machine.

Heat-setting nylon fabric. A. W. Staudt, E. I. du Pont de Nemours & Co. *Am. Wool Cotton Reptr. 63,* 11-12 (Apr. 14, 1949).

Heat-setting a nylon fabric causes a rearrangement and fixation of the internal molecular structure to stabilize it. Nylon hosiery is heat-set by subjecting it to saturated steam under pressure while held to shape on a leg form. To heat-set nylon woven fabrics, a hot-roll machine is used. Steam-pressure-setting in an autoclave is the

preferred method for tricot knit nylons, and hot air on closed tenters for laces and nets. Heat-set nylon fabrics may be tested for stability by a 30-min. immersion in boiling water, with a contraction of not over 1% during this boil-off.

Pre-setting nylon hosiery. Anon. *Am. Wool Cotton Reptr. 63,* 9-10 (Mar. 31, 1949).

The use of the Proctor & Schwartz boarding and automatic stripping machine for dyeing and boarding broad rib anklets of spun nylon is discussed. The method of substituting pre-setting for preboarding and then permanently shaping nylon hosiery after dyeing is also described. The pre-setting process consists of striking the welts of the hosiery against the edge of a work table, wrapping them in a blanket and steaming. Presetting saves labor and strain on the fabric.

DYEING AND PRINTING E

Changing aspects in dyeing and finishing. L. S. Thompson, Gen. Dyestuff Corp. *Am. Dyestuff Reptr. 38,* 276-80 (Mar. 21, 1949).

This is a discussion of the developments in dyeing and finishing that have come about as the result

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of problems presented by fabrics made of the many new fibers.

Hydrosulfites; production, properties, and textile applications. G. Brearley & J. Starkie. *J. Soc. Dyers Colourists 64*, 278-83 (Aug. 1948).

This is a review of the methods of producing the commercial hydrosulfites and sulfoxylates and their properties. Detailed descriptions are given of several variations of the usual methods of application designed to deal with special textile problems. Physical methods of analysis are also briefly discussed.

Napthol dyeing and printing. R. H. Nutthall, Am. Aniline Products, Inc. *Am. Dyestuff Reptr. 38*, 232-3 (Mar. 7, 1949).

This is a discussion of the principles involved in the use of naphthol dyes in package, rawstock, and hosiery dyeing, and printing. The washing and cleaning of the dyed fabrics is also discussed.

Sequestrene. Anon. *Textile Age 13*, 67 (Jan. 1949).

Applications of Sequestrene, ethylene bis-iminodiacetic acid, in dyeing and printing are summarized.

Dyeing

Application of fast colors to mercerized cotton hosiery. C. Harrell Asbury, E. I. du Pont de Nemours & Co., Inc. *Am. Dyestuff Reptr. 38*, 58-9, 76 (Jan. 24, 1949).

This is a discussion of some of the problems encountered in dyeing hosiery with vat and naphthol colors, and the methods used to solve them. It is pointed out there is no valid argument for hosiery dyed with colors that are not fast.

Application to viscose rayon of the differential dyeing test for cotton maturity. W. Armfield & John Boulton, Courtaulds Ltd. *Textile Research J. 19*, 212-4 (Apr. 1949).

The test for the detection of immature, thin-walled cotton, using a binary mixture of direct cotton dyes, was applied to viscose rayon staple fiber. The test involves a technique in which normal thick-walled hairs assume a red, and thin-walled, a green color. In the present investigation, the dyes were applied to viscose rayon staple of known coarse and fine deniers instead of thick- and thin-walled cotton to study the dye-absorption characteristics of viscose. It was found that the fine and coarse deniers reacted in the same manners as the thin- and thick-walled cotton. However, of any 2 dyed fibers of like composition but

different thickness, the color of the finer filament will always appear lighter in depth than the thicker for the same weight of dye per weight of fiber.

Application of leucoesters of vat dyestuffs to wool. Hans Luttringhaus, Gen. Dyestuff Corp. *Am. Dyestuff Reptr. 38*, 172-83 (Feb. 21, 1949).

This is an account of experience with the leucoesters of vat dyestuffs, their properties, and their application to wool. Exhaustion curves are given for 18 important algosol colors. Dyeings were removed from the bath at every 10°F interval up to the boil and thereafter at every 10-min. interval for 60 min. After development of the dye, the reflectance of dyeings were measured with the photovolt meter, which works quickly and efficiently enough for this purpose. The results are summarized in a table which show the conditions necessary to obtain various degrees of exhaustion. The effect of pH on exhaustion, the developing process, and the lightfastness on wool and cotton are also discussed.

Brine offers savings in dyeing process. Anon. *Textile Industries 113*, 106 (Feb. 1949).

The use of self-filtered salt brine, made from rock salt in a Lixator, as an exhausting agent in the dye house is claimed to reduce salt consumption 12%, save time, and eliminate streaks, spotting, and irregular shades. Operation of the Lixator is described.

Colored articles from organic filament-forming materials. Imperial Chemical Industries Ltd. Indian P. 35 468 (through *J. Sci. Ind. Research (India)*).

Current practice and significant trends in vat dyeing. Ormond W. Clark, Am. Cyanamid Co. *Can. Textile J. 65*, 45-6, 48 (Dec. 24, 1948); *66*, 46-8 (Jan. 21, 1949).

In this discussion of current practices, three signifiicant trends are noted: (1) the willingness of mills to invest in the newest models of stainless steel equipment; (2) replacement of batch methods by continuous methods and the use of automatic controls; (3) provision of additional information by the dye manufacturers, e.g., data on the reduction and dyeing behavior of vat dyes over a wide range of conditions.

Discharge ratings for acetate dyes on nylon. Anon. *Tech. Bull. (duPont) 5*, 38-40 (Mar. 1949).

The discharge ratings for acetate dyes on nylon are presented. These data are a supplement to related fastness data published in the July 1947

issue of the *Tech. Bull.* With a few exceptions, these colors exhibit comparatively poor discharge properties on nylon.

Dyeing rayon packages. H. A. Thomas, Courtaulds Ltd. *Can. Textile J. 65,* 49-50, 51 (Nov. 26, 1948); 50, 51-2 (Dec. 24, 1949).

Part I is a discussion of basic principles: (1) dyeing control; (2) satisfactory form of the pack; and (3) good flow of liquor. Part II is a discussion of specific examples of pack dyeing "Fibro" in various forms including staple, spun yarn, narrow and wide fabrics, with data on dyestuffs and processing techniques.

Effect of Sulfur Black on the tendering of cotton yarns. AATCC, Southeastern Sec. *Am. Dyestuff Reptr. 37,* 833-7 (Dec. 13, 1948).

Investigations were undertaken on plant scale to try out the alkaline treatments that had been suggested in the literature as a method of reducing the tendering of Sulfur Black-dyed cotton caused by sulfuric acid produced by some type of oxidation of the sulfur associated with the dyestuff molecule. It was found that alkaline after-treatments are effective and practical as a means of decreasing the tendering; ageing of dyed yarn for 7 hr. at 140°C was found necessary to obtain a satisfactory spread in tendering action between original, dyed, and after-treated yarn. Certain chemicals can be used to effectively increase the strength of cotton yarn; mercerized yarn resists the tendering action of Sulfur Black; however, mercerized yarn under the action of heat tenders to a greater extent than bleached and scoured cotton.

Evaluation of leveling agents. D. H. Gunther, Burkart-Schier Chemical Co. *Am. Dyestuff Reptr. 38,* 236-8 (Mar. 7, 1949).

This is a discussion of methods of evaluating leveling agents based on the literature and private correspondence. There are 28 references.

Experiments in mineral khaki—II-III. S. V. Bhende & S. R. Ramachandran, Univ. of Bombay. *J. Sci. Ind. Research (India) 7B,* 176-83 (Nov. 1948); *8B,* 10-16 (Jan. 1949).

This is an account of investigations of the relation of the nature of the fabric, the scouring treatment, the metallic salts used, drying and steaming, the precipitation bath, time of contact, with the alkali, and the after-treatments to the ultimate shade of khaki produced on dyed fabrics.

Herringbone hump reel for piece dye kettles. Anon. *Am. Wool Cotton Reptr. 63,* 31 (Mar. 1949). *Textile Age 13,* 140-1 (Apr. 1949).

An illustrated description of a new type stainless steel herringbone hump reel for piece dye kettles is given. The reel is claimed to completely eliminate the chances of goods running in 1 fold with resultant streaks and kettle cracks.

Hosiery dyeing. H. Unwin. *J. Soc. Dyers Colourists 64,* 245-8 (July, 1948).

This paper is a record of the author's experiences in the dyeing of hosiery. In dyeing hosiery, the items to be considered are the construction of the hose, the sort of dye-bag and the number of stockings per dye-bag, the type of dyeing machine, what chemicals, dyes and finishes are required, and finally any special precautions that have to be taken. All these questions are dealt with both in general and in particular as they arise.

Metals in tippy dyeing. Henry E. Millson, Am. Cyanamid Co. *Am. Wool Cotton Reptr. 63,* 9-10 (Apr. 28, 1949).

The presence of metals in the dye bath may not only cause wool to dye tippy, but may also be the reason for undesirable color changes. Metals may enter a dye bath through the water used, from the dyeing machines or accessories, or even from the dye itself. It has been found that each metal found in the dye bath will produce an entirely different shade with the same dye. It has also been observed that the extent of damage in a staple or part of the fleece varies considerably, depending on is original location in the fleece.

Method for the graphical representation of the dyeing properties of acid wool dyes. H. Ris, W. Stocker, & E. W. Thomen *J. Soc. Dyers Colourists 64,* 297-304 (Sept. 1948).

The use of graphical representation for summarizing the characteristic properties of a dye is discussed. Exhaustion and migration curves are given for a number of dyes. It is pointed out that use of such information should be supplemented by practical experience rather than followed blindly.

Modern yarn dyeing facilities. Anon. *Textile Industries 113,* 115-16 (Mar. 1949).

Materials handling equipment, dyeing and extracting equipment, and laboratory equipment for a new addition to a dyehouse (at Mandeville Mills, Inc.) are described. It is reported that most of the cast iron machinery has been replaced by stainless steel.

Modernizing dye house requires over-all planning. Arthur R. Wachter, Am. Viscose Corp. *Textile Age 13*, 7, 10, 12, 14, 18 (Jan. 1949).

Necessary equipment for modernizing a dyehouse is described and the over-all planning for this equipment discussed.

New coloring matters for cellulose esters and ethers and for fiber-forming polyamides and polyesters: (R—CH_2—CH_3)N. Imperial Chemical Industries Ltd. Indian P. 35 194 (through J. Sci. Ind. Research (India)).

New dyeing technique for narrow braids. Anon. *Textile Age 13*, 104 (Feb. 1949).

The narrow braid for men's hats may be dyed by a new process that makes use of pigment dyes that are resin bonded to the fabric. The use of resins also adds substance and body to the braid formerly supplied by starch.

New laboratory stock dye kettle. Anon. *Textile Age 13*, 59-60 (Jan. 1949).

A brief description is given of a new dye kettle that can be used to dye sample lots of wool, cotton, rayon, and nylon in stock, skein, package, or top.

Preliminary study of variables in padding. AA TCC, New York Section. *Am. Dyestuff Reptr. 38*, 159-71 (Feb. 21, 1949).

This is an account of investigations undertaken to provide data on squeeze roll operation and thereby facilitate the more intelligent use of such equipment in practical mill operation. The work was carried out, for the most part, on practical mill equipment and was concerned primarily with a study of pick-up in a wide range of pressures, temperatures and speeds. It is suggested that with this paper as a basis, individual mills should investigate specific problems on their own equipment and under their own conditions.

Remote control of dyeing cycles. F. D. Wallace, Dominion-Burlington Mills Ltd. *Am. Dyestuff Reptr. 38*, 92-3 (Jan. 24, 1949).

See TTD: *6*, 135.

Scientific approach to the study of dyeing. T. Vickerstaff, Imperial Chemical Industries. *Am. Dyestuff Reptr. 38*, 305-9 (Apr. 4, 1949).

See TTD: *6*, 228.

Some phases of high temperature dyeing. AATCC, Philadelphia Section. *Am. Dyestuff Reptr. 38*, 9-32 (Jan. 10, 1949).

This paper describes experiments designed to answer some of the many questions concerning high temperature (212°F and higher) dyeing, for which the literature does not provide information. The experiments involved cotton, viscose, acetate, nylon, and wool fibers and a large number of dyes; detailed information on techniques used and results obtained is given. In general, it was found that high temperature dyeing resulted in an increase in speed, leveling, and diffusion and that the process is particularly adaptable to high-speed continuous dyeing with noteworthy gains in fiber quality and economies from volume production.

Spectrophotometer as an aid to dyeing. Frederick T. Simon, Sidney Blumenthal & Co. *Can. Textile J. 66*, 52, 54, 56 (Mar. 18, 1949).

Four types of spectrophotometers available and their use in dyeing and printing are discussed. Reflectance measurements on dyed fabrics and the matching of dyed shades can be carried out. The author's laboratory has developed a model dyeing machine in which the amount of dye removed from a dye bath is determined spectrophotometrically. It is concluded that the spectrophotometer is the only known instrument which can be used to measure color, and that it has great possibilities.

Stability of vat colors at elevated temperatures. AATCC, Piedmont Section. *Am. Dyestuff Reptr. 38*, 213-31 (Mar. 7, 1949).

In this investigation of the reactions of vat colors in reductions at elevated temperatures (190°F) it was discovered that white corn dextrine aids materially in the stabilization of reduced vat color solutions. Since all white corn dextrines do not produce the same protective action, it is necessary to evaluate them by the alkali labile number. A testing method was developed to determine the proper reduction of vat dyestuffs when dyed by continuous process. The commonly known reducing agents were checked for power of quick reduction and stability of the standing leuco solution. It was found that a need exists for high temperature dyeing for a reducing agent having properties between hydrosulfite and sulfoxylate.

Studies on absorption of methylene blue by jute fiber. P. B. Sarkar & H. Chatterjee. *J. Soc. Dyers Colourists 64*, 218-21 (June, 1948).

The absorption of methylene blue by jute fiber, both raw and variously treated, has been measured under different conditions. The dye absorption depends largely on the *p*H of the dyebath, but is practically independent of time, temperature, and concentration. The maximum absorp-

tion agrees fairly well with the acid value of the fiber, both raw and treated. It is suggested that cationic exchange takes place between polyuronic acids of the fiber and methylene blue. The strong natural affinity of jute for basic dyes does not appear to be due to the presence of lignin, which has a comparatively low absorption value. A much deeper hue can be obtained with basic dyes if the fiber is given a mild preliminary treatment with dilute caustic soda at room temperature.

Systematic investigation of the color and dyeing properties of the aminoacridines. Part II—Diaminoacridines and substituted monoaminoacridines. C. L. Bird. *J. Soc. Dyers Colourists 64,* 357-9 (Nov. 1948).

In Part I of this investigation (*J. Soc. Dyers Colourists 59,* 74 (1943), figures were obtained for the fastness to light, water, washing, alkali, and mineral and organic acid of the 5 monoaminoacridines dyed on tanned cotton. Part II is a report on the same fastness tests which were carried out on similar dyeings of a number of diaminoacridines. The results obtained are given in a table, which also includes, for comparison, the fastness grades of the 5 monaminoacridines, as well as the molecular weights of the compounds tested.

Printing

New printing process. Anon. *Textile Age 13,* 58 (Jan. 1949).

High-speed multi-color printing without a back grey or cylinder is claimed for the new Heliofast printing process.

Oil protects copper rollers. Anon. *Textile Industries 113,* 118 (Feb. 1949).

Copper printing rollers are given a thin transparent coating when immersed in Oakite Special Protective Oil. This coating protects the rollers from corrosion due to acidic dyes and fumes.

Problems in screen printing. F. F. Jacobs, Gen. Dyestuff Corp. *Can. Textile J. 66,* 43-6 (Feb. 18, 1949).

The process of screen printing is reviewed and recent improvements are noted which have greatly improved the quality of screen printing and resulted in its development into a large industry.

Screen printing technique and practice. I-IV. C. L. Wall. *Textile Mfr. 74,* 584-7 (Dec. 1948); *75,* 35-7 (Jan. 1949); 87-9 (Feb. 1949); 138-41 (Mar. 1949).

This is a practical discussion of the techniques,

machines, and processes used in screen printing.

Short aging processes for the printing of synthetics, silk, and wool. A. K. Saville, E. I. du Pont de Nemours & Co. *Am. Dyestuff Reptr. 38,* 310-2 (Apr. 4, 1949).

The processes for printing synthetics, silk and wool are functionally similar. In each case the choice of assistant and its concentration is such that a solution of the color is present either in the printing paste or is formed when the aqueous portion of the paste evaporates during drying. The color, in solution instead of in the pigment state as in conventional printing, is rapidly and completely fixed during a short aging. The advantages of this technique are many; sublimation of acetate colors will not occur, the saturation points of acid colors on nylon will be increased, the compatibility of the colors improved and the barré minimized. By using continuous aging instead of batch cottage steaming, the printing costs will be lowered. Labor costs and steaming time should be reduced and uneven steaming along the piece and between successive batches eliminated.

Some conditions affecting the application of vat colors. AATCC, The Rhode Island Section. *Am. Dyestuff Reptr. 38,* 69-75 (Jan. 24, 1949).

This is an account of investigations undertaken to determine why certain vat colors produce satisfactory results in dyeing but generally poor results when used in printing. Included in the study, which involved 16 colors, were the following variables: (1) dispersion of pigment particles and particle size; (2) substantivity of the leuco compound; (3) reduction of the vat color; (4) solubility of the leuco compound; (5) molecular weight. From the results obtained, it was concluded that if the optimum conditions for each color are obtained, most vat colors are suitable for both dyeing and printing. However, due to the effect of some of the variables studied, it is not commercially practical at the present time to print certain vat colors.

Textile printing. F. Farrington. *J. Soc. Dyers Colourists 64,* 269-74 (Aug. 1948).

This is the Fifth John Mercer Lecture. The history and development of textile printing is reviewed and present techniques are discussed with particular reference to gaps in existing knowledge.

Textile printing techniques. Francis S. Richardson, Waldrich Bleachery. *Am. Dyestuff Reptr. 37,* 864-5 (Dec. 27, 1948).

This is a discussion of textile printing techniques with particular reference to recent developments.

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Crease-resistance and cotton. Geo. S. Buck, Jr. & Frank A. McCord, Natl. Cotton Council of Am. *Textile Research J. 19*, 216-47 (Apr. 1949).

This survey of crease-resistant treatments for cotton is intended to assist and guide those interested in developing, through research, new crease-resistant treatments. The potential market is discussed in order to help researchers estimate the size of the research effort that is warranted. A review of technical information is given also. There are 165 references.

Synthrez D for crease resistance. Anon. *Textile Age 13*, 96 (Feb. 1949).

Synthrez D, a monomeric methylolurea condensate, is a soft, creamy, white, water-soluble paste that is used in the production of crease-resistant and shrink-resistant finishes on cotton and rayon. It is also used in producing glazed chintz and other durable finishes.

Chigger control. H. F. Cross & F. M. Snyder, USDA. *Soap & Sanitary Chemicals 25*, 135, 137, 139, 141, 143 (Feb. 1949).

Of 5963 materials tested for their effectiveness as clothing treatments against chigger mites, 150 were as good as or better than benzyl benzoate, the standard of comparison, when applied to cloth patches at the rate of 2 g per sq. ft. All materials in this group inactivated the mites after 2 launderings, and 34 of them were effective after an average of more than 4 launderings. Of the latter group, 76% were solids. Some of the more effective materials withstood 40 to 50 days each of exposure outdoors and to ultraviolet light. Smaller dosages were more quickly affected by these exposures. When the better materials were applied at 2 g per sq. ft. and then stored indoors in the dark, all of them were still effective 154 to 249 days after treatment. Eleven of the 28 materials for which recovery records were obtained permitted 100% of the test chiggers to recover after exposure for 20 minutes to treated cloths. Samples of cloth treated with gamma benzene hexachloride (95%) showed the greatest resistance to water, remaining effective after an average of 19.3 launderings. This compound also showed the lowest minimum effective dosage (0.56 mg. per sq. ft.) in fresh treatments. Benzyl benzoate at dosages of 2.0 to 0.5 grams per sq. ft. was effective after one washing but some samples failed at all dosages after the second washing. Data are presented for 34 of the more effective materials tested. The chemical group containing the largest proportion

of first-rate materials were the thiocyanates.

Deterioration of cotton textiles exposed to the weather. Herman Bogaty, Natl. Bur. Standards. *Am. Dyestuff Reptr. 38*, 253-9 (Mar. 21, 1949).

This paper presents data obtained in the course of an investigation on some aspects of tropical deterioration of cotton textiles which was undertaken by the Natl. Bur. Standards for the Natl. Defense Research Commission in 1945. It was found that cotton fabrics treated with copper naphthenate deteriorated more rapidly on outdoor exposure than did untreated fabrics; commercial copper naphthenate was more effective as a fungicide with respect to soil contact than was copper naphthenate prepared in the laboratory from copper acetate. Phenyl salicylate, (salol), an ultraviolet radiation absorber, was not effective in preventing degradation of cotton exposed to weathering; pyrogallol, however, gave some promise in this respect, and further work is indicated.

Fabric-destroying fungi. A. Wyn Williams. *Textile Age 13*, 24, 26, 28 (Feb. 1949).

Bacteriological destruction of fabrics is caused by enzymes secreted in fungi that are present in the air, and material resistance to these attacks is weakened when the pH of the fabric is on the alkalinity side. The 'Sanitized process" stabilizes and maintains the pH of any treated fabric on the acid side thus stimulating the bacteriostatic value of the process. Fabrics treated by this process are claimed to be resistant to bacteriological deterioration as long as they are not washed.

PRESERVING COTTON FABRICS IN OUTDOOR USE. J. D. Dean. *Bur. of Agricultural and Industrial Chemistry, Dept. of Agriculture.* Supt. of Documents. 17 p. Price: 10¢.

Function of methylated melamine-formaldehyde resin in controlling shrinkage of woolens. C. R. Stock & D. J. Salley, Am. Cyanamid Co. *Textile Research J. 19*, 41-3 (Jan. 1949).

The role of methylated melamine-formaldehyde resin in controlling wool shrinkage was investigated by examining the following factors: (a) alteration in hysteretic response of fibers to stress; (b) change in friction between fibers in contact; e.g., reduction of the directional coefficient; and (c) control by bonding of fibers to their neighbors at points of contact, forming a network of fibers with restricted relative motion. In the results obtained (a) was ruled out; (b) no significant difference was found for fibers withdrawn from threads raveled from treated and untreated cloth;

(c) the tensile strength of felts made from (1) short fibers, (2) untwisted single plies of knitting yarns, and (3) untwisted single-play threads from cloths was significantly enhanced (up to tenfold) by the resin treatment.

Improving the properties of fibers and dyeings by treatment with hydrophobic melamine-formaldehyde compounds. A. Landolt. *J. Soc. Dyers Colourists 64*, 93-9 (Mar. 1948).

The properties of a hydrophobic methylol melamine resin are described and discussed. This resin is soluble in water, being precipitated on dilution, and only at certain concentrations shows in acid solutions the properties of positively charged colloid ions. When applied to cellulosic fibers, it improves the following properties:—anti-swelling, wet strength, dimensional stability, fastness to water-spotting, fastness to weathering, reserving action against dyes, fastness to light and atmosphere of vat dyeings, fastness to chlorine of dyeings. It also imparts dimensional stability to wool fabric. Photomicrographs of cross-sections of treated fibers show that the hydrophobic melamine resin penetrates into the fibers. The hypothesis is put forward that the resin inside the fibers produces cross-linking of the principal valency chains of the cellulose and so counteracts the tendency of the fiber to swell when in contact with water.

Shrinkage control must be based on fiber characteristics. Irving Teplitz. *Textile Age 13*, 7, 10, 12, 14, 18 (Mar. 1949).

This is a discussion of wash-fast and shrinkage requirements in fabrics. Methods for controlling shrinkage, including the Sanforized and Redman processes for cotton; the Austinized process for rayon staple and cotton blends; the T. B. L. Sanforset, and Definized processes for rayon; and the Protonized, Harriset, etc. proceses for wool, are described.

Shrinkage control of knit goods. Anon. *Textile Age, 13*, 46, 48, 50, 52, 54, 56 (Apr. 1949).

Shrinkage in knit goods is caused by (1) tension applied to the yarn in the various manufacturing processes and (2) a physical change, after laundering, in the character of the fiber itself. The first type of shrinkage is common in knitted goods of any fiber, and the Redman process has been found to solve this problem. The second type of shrinkage is only characteristic of wool fibers. Four classes of treatments are used to eliminate this type. They are: the halogenation processes, resin processes, alcohol-alkali processes, and the

enzyme processes. A discussion of these causes of shrinkage and methods of shrinkage control is given.

Shrinkproofing wool socks. H. M. Sandison. *Textile Industries 113*, 156, 159 (Mar. 1949).

Suggestions for setting up standards with the thiosulfate-iodide test in shrinkproofing wool hosiery are given.

Treatment of wool to impart shrinkage resistance thereto. Harry F. Clapham, Milton Harris & Arthur L. Smith (to Harris Research Laboratories). USP 2 457 033, Dec. 21, 1948.

A process for imparting shrinkage resistance to wool and to fabrics comprising wool comprises treating the material with a hypochlorite solution and a buffer system comprising borax, the solution having a hydrogen ion concentration of between pH 8.0 and pH 9.0.

Wool shrinkage control. L. A. Fluck, Jr., Am. Cyanamid Co. *Am. Wool Cotton Reptr. 63*, 13-14 (Apr. 28, 1949).

A new method of applying thermosetting resins, such as melamine resins, to wool for shrinkage control which eliminates entirely the need for high temperatures is discussed. The procedure consists of, first, the preparation of wool by treatment with a peroxy compound and second, the application of an acidic water solution of a polymerized thermosetting resin. Thorough drying is all that is required to fix the resin in the fabric.

Cellulose compound wrinkle composition. Nathan T. Beynon (to New Wrinkle, Inc.). USP 2 456 670, Dec. 21, 1948.

A new wrinkle-drying coating composition which may be applied to paper, fabric, and similar flexible materials consists of a conjugated double-bonded fatty oil and a cellulose compound selected from the group consisting of cellulose acetate, ethyl cellulose, and nitrocellulose cold-mixed in proportions of 100 parts by weight of the oil to 10 to 50 parts by weight of the cellulose compound. The texture of the wrinkle pattern obtained may be controlled or altered by the selection of the type of cellulose derivative used.

Composite pressure-sensitive adhesive sheet material. Henry N. Homeyer, Jr. (to The Kendall Co.). USP 2 458 166, Jan. 4, 1949.

This invention has as its chief object the production of a composite pressure-sensitive adhesive sheet material comprising a relatively permeable backing material such as woven or unwoven fab-

ric, or paper, bearing on one side thereof a layer of a pressure-sensitive adhesive, and on the other side a coating which resists these deleterious influences and thus simultaneously protects the pressure-sensitive adhesive which underlies the backing both during storage in roll form and in use. It was discovered that cellulose derivatives such as ethyl cellulose, nitrocellulose, and cellulose acetate, and polyvinyl acetate, vinyl acetate-chloride copolymers and polyvinyl chloride have an entirely unexpected and almost unbelievable affinity for Buna N (copolymer of butadiene and acrylic nitrile) particularly and also polychloroprene. This invention utilizes these discoveries by affixing to a tape backing a coat of a synthetic rubber of one of the particular types towards which these coating materials exhibit this peculiar affinity, then superposing on this impermeable coat a repellent film of nitrocellulose or other material repellent to natural rubber and of the type heretofore described.

Method of forming nonthermoplastic synthetic resin films. Gordon T. Vaala (to E. I. du Pont de Nemours & Co.). USP 2 458 451, Jan. 4, 1949.

Coating compositions which can be used for the manufacture of coated fabrics or unsupported sheeting to be used in the manufacture of raincoats, etc., as adhesives for fabrics, paper, wood, glass, metal, etc. are made by a process which comprises mixing a polyvinyl butyral resin having a hydroxyl number above 60 with a melamine-formaldehyde-alcohol condensation product at about 60°C., forming a solvent-free mass thereof into a sheet, and thereafter rendering the composition non-thermoplastic and insoluble by heating the same for 1 to 3 hours at a temperture of 105 to 125°C.

Process for preparing aqueous dispersions of polyvinyl butyral. Wm. H. Bromley, Jr. (to Shawinigan Resins Corp.). USP 2 455 402, Dec. 7, 1948.

Aqueous dispersions of polyvinyl butyral for coating paper, cloth, etc. to form a tough, flexible film, are made by reacting a polyvinyl alcohol with butyraldehyde in the presence of a strong acid catalyst, a plasticizer, a solvent for the resulting polyvinyl butyral, and the acid portion of a soap-type emulsifying agent, neutralizing the resulting resin without precipitation, adding water to the neutralized resin whereby a dispersion of water-in-resin is obtained, and continuing to add water until inversion occurs, whereby a dispersion of resin-in-water is formed.

Textile stiffener. Anon. *Textile Age 13,* 96-7 (Feb. 1949).

Polyco 337, a new textile stiffener which contains 35% resin solids, is claimed to be laundry-resistant, to provide extra resistance to soiling, abrasion, and wear, and to increase fabric strength.

Use of cation active finishes. Geo. Wiseman, Ciba Co. *Can. Textile J. 66,* 43-5 (Jan. 21, 1949).

In a paper delivered before the Canadian Assn. of Textile Colourists and Chemists, Ontario Sec., the properties and methods of application of cation-active finishes are discussed.

Webbable, strippable coating composition. Wm. H. Holst & Geo. R. Hersam. USP 2 459 164, Jan. 18, 1949.

A coating composition which may be applied to a wide variety of materials, including fabrics, comprises vinyl chloride-vinyl acetate copolymers, vinylidene chloride-acrylo nitrile copolymers, a nondrying, hydrophobic substance, a plasticizer and a stabilizer. These components are dissolved in a sufficient amount of solvent to give a solution of the desired viscosity for applying the composition to an object by spraying, dipping or pouring.

DIE VERWENDUNG DER KUNSTSTOFFE IN DER TEXTILVEREDLUNG. (Application of synthetic materials to textile finishing). Franz Weiss. Springer-Verlag, Vienna, 1949. 187 p.; 11 illustrations; Price: 27s 6d.

The author gives a useful account of the application of natural and synthetic materials in the treatment of textiles. Although the old ways of finishing yarn and cloth with starch and vegetable oils are still practised, it is now recognized that synthetic materials, such as synthetic resins and other polymerization and condensation products, offer far wider opportunities of imparting varied finishes to textiles, especially to the newer synthetic fibers . . . The book contains many good references and at the beginning of each chapter a list of relevant books is printed, but without the name of the publishing firms.

TESTING AND MEASUREMENT G

Action of light on textile materials; a review of the literature. Dorothy K. Appleby, Southern Regional Res. Lab. *Am. Dyestuff Reptr. 38,* 149-56, 189-92 (Feb. 21, 1949).

This paper reports the findings recorded from 1920-April 1948 on the action of light on the various textiles. There are 232 references.

Data on a laboratory method for wool raw stock

detergency. E. A. Leonard & L. Beck, Alexander Smith & Sons Carpet Co. *Am. Dyestuff Reptr. 38*, 348-52 (Apr. 18, 1949).

The method for testing raw wool detergency in the laboratory was used to demonstrate several process variables with respect to their effect on the scouring system. It was indicated that the temperature, type, and concentration of detergent and builder, immersion time, and squeeze roll pressure all have an important bearing on the scouring effectiveness.

New cotton strength test. Anon. *Am. Wool Cotton Reptr. 63*, 67, 96-8 (Feb. 10, 1949).

Inaccurate measurements of cotton fiber strength are due to mistaken ideas as to fundamentals. It is suggested that more accurate data could be obtained by increasing the space between testing jaws of strength testing machines.

1948 ASTM STANDARDS ON TEXTILE MATERIALS. Philadelphia, Pa., Am. Soc. for Testing Materials, 1948. 560 p.; Price: $4.35.

The October, 1948 edition of "ASTM Standards on Textile Materials," include in their latest form 86 specifications, test methods, and tolerances developed by Committee D-13 on Textile Materials. Considerable other related material is given . . . There are included in this publication a number of appendices covering the following: basic properties of textile fibers; yarn number conversion table; proposed recommended practice for designation of yarn construction; psychrometric table for relative humidity; proposed recommended practice for calculating number of tests to be specified in determining average quality of a textile material; proposed test for accelerated aging of textiles; proposed test for estimating the clean wool content in wool in the grease; proposed test for evaluation of properties related to the hand of soft-finished woven fabrics; and proposed specification and method of test for fire-resistant properties of treated felt. There are also included convenient tables of contents (by subject and by ASTM serial designation), and an index of methods of test. Another feature of this publication is a section with several papers presented before Committee D-13 on Textiles.

Re-examination of present wetting tests. Sidney M. Edelstein, Dexter Chem. Corp., & Carl Z. Draves, Gen. Dyestuff Corp. *Am. Dyestuff Reptr. 38*, 343-7, 352 (Apr. 18, 1949).

Four wetting tests were re-examined in this investigation: (1) the official AATCC, or Draves, method; (2) the canvas-disk, the yarn-bundle,

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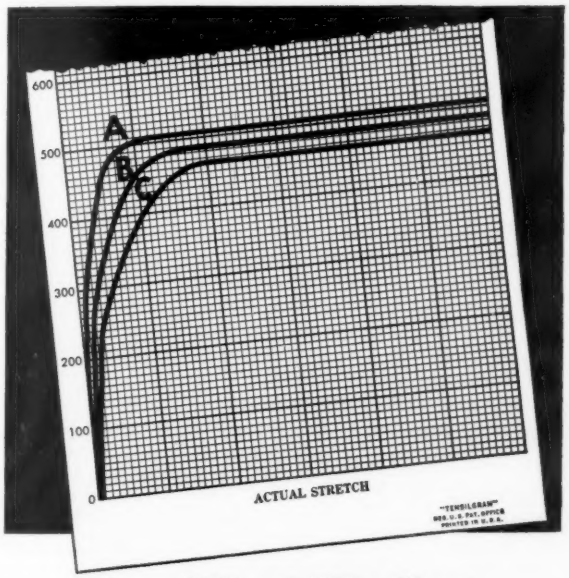

Yarns "A" and "C" will not weave as desired

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1) Find out how much extension of the warp yarn is required for weaving—as for example, in the picturized line "B."

2) Be sure that, after sizing, the yarn graph conforms with the desired modulus.

Yarn "C" above, has not been extended sufficiently in slashing. Its over-elastic action in weaving may cause flaking off of the coating. Yarn "A" has been over-extended, tending to make it brittle and lacking in resiliency.

This test, produced on an IP-2 Incline-plane machine, is an excellent example of how *Scott Testers and their picturized charts provide exact knowledge and sure control at vital points in the production cycle.

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and (3) the canvas-square methods. It was concluded that the choice of the wetting test, either for control or for the comparison of wetting agents of the same chemical type, is essentially a matter of personal preference or convenience. In the comparison of wetting agents differing chemically, it was indicated that 2 different tests should be used if a broad picture of the relative wetting efficiencies is to be obtained. The official method and the canvas square method are recommended for this purpose.

Clothing and fabrics G 1

Flammability of consumer textiles. Geo. S. Buck, Jr. Natl. Cotton Council of Am. *Am. Dyestuff Reptr. 38*, 78-84 (Jan. 24, 1949).

The conclusion and recommendations which followed the 2-year study by the AATCC and the Natl. Bur. Standards Technical and Standing Committees on the evaluation of the flammability of clothing fabrics are reported. Seven laboratories cooperated in testing 54 fabrics on the AATCC inclined flammability tester and the horizontal tester developed by the Fire Protection Section, Natl. Bur. of Standards. It was found that the laboratories differed significantly in burning times for the different fabrics, and that there was no consistent pattern of differences between laboratories. The inclined tester and the horizontal tester do not show a correlation sufficiently high that they could be used interchangeably.

Quartermaster Corps accelerated test method for evaluating shrink-resistant wool as developed for 10½ oz. wool shirting. Louis I. Weiner, Phila. QM Depot. *Am. Dyestuff Reptr. 38*, 289-95 (Apr. 4, 1949).

An accelerated test method for evaluating shrink-resistant wool as developed for 10½ oz. wool shirting is described. (In the test, wool specimens and standard ballast to make a 6-lb. load are agitated in 4 inches of water buffered to a pH between 5 and 7 at a temperature of 140°F for a period of 1 hr. in a 24 in. Norwood washer. After this the specimens are centrifugally extracted, dried in a tumbler, sprayed and pressed). This report has also been released by the Office of Technical Services, U. S. Dept. of Commerce, *Textile Series Report No. 53*, Office of the QM General, Military Planning Div., Res. and Dev. Br.

Second report of Fastness Tests Committee. *J. Soc. Dyers Colourists 64*, 133-45 (Apr. 1948).

This second report gives specifications recommended for testing the fastness of colored natural

or regenerated cellulose, wool materials, acetate rayon materials, and silk materials. The recommendations given are an improvement over those of the first report which was published in 1934.

Shrinkage tester for circular knit fabrics. Anon. *Textile Industries 113*, 149-50 (Apr. 1949).

A shrinkage tester for testing rayon circular knit fabrics and similar materials is described and its operation is discussed.

Tentative textile specification No. 14, 1949. Determination of breaking load and extension of strips of woven textile fabric (By means of constant rate of load testing machines. *J. Textile Inst. 40*, S1-S4 (Jan. 1949).

This specification covers the determination of the breaking load and breaking extension of ravelled or cut strips of woven fabric by means of automatically controlled machines in which the applied load is increased at a predetermined rate. It would require the reaching of a breaking load in 60 ± 10 sec. The specification also requires that means be provided whereby the elongation of the fabric produced by the applied load shall be taken up automatically without influencing the rate of application of the load. Instructions for sampling, preparation of samples, condition of the sample and atmospheric conditions for the test, the method of test, and the recording of test results are also given.

Urges finishers use shrink test. Jackson A. Woodruff, Am. Viscose Corp. *Am. Wool Cotton Reptr. 63*, 13 (Apr. 14, 1949).

A simple wetting and drying test to show the shrinkage qualities of fabrics consists of marking a 10″ length on both the warp and filling directions, wetting the fabric thoroughly, blotting the excess moisture, drying the fabric while laid flat on a porous surface, and then measuring the 10″ marks. The test is of importance in stabilizing fabrics.

Instruments and instrumentation G 2

Abrasion tester features unique abrading action. Anon. *Textile Industries 113*, 215 (Feb. 1949).

A new abrader has a unique rotary abrading action resulting from alternately rubbing the flat faces of 2 resilient Calibrase wheels over the surface being tested. All types of surface finishes may be tested. Features of the abrader are noted.

Automatic machine tests yarns, eliminates human

element. Anon. *Silk J. Rayon World 25,* 46 (Dec. 1948).

A yarn testing machine, entirely automatic in operation, is a product of Fabbriche Electrotecniche Riunite, Milan, and has been given the name "Autodynamograph," or the "Pagnacco" testing system, after its inventor. Normally the machine is set for a sequence of 70 successive tests, one from each of 7 samples; or the tests may all be taken from a single sample. The results of the tests are recorded diagrammatically on paper which shows the breaking strength and elongation values for each individual test together with the mean breaking strength for the whole series of tests. The test records are immediately detachable for filing purposes. The instrument incorporates a double testing capacity adjustment, e.g., 400 gr. and 800 gr. The maximum capacity is 1,000 gr. The maximum elongation which can normally be recorded is 20% but this can be increased to 25% if necessary.

LIGHT-SENSITIVE PAPER No 1554: Directions for use in testing textiles for color-fastness to light. Natl. Bur. of Standards. *Letter circular 935.* 2 p.

Method and apparatus for measuring surface tension. Hans M. Cassel. USP 2 448 768, Sept. 7, 1948.

A device for measuring surface tension by the maximum bubble pressure method is described. Advantages claimed are accuracy and use of small quantities of liquids.

EKF

Natural and artificial sunlight; their application in testing materials. A. H. Taylor, Gen. Electric Co. *Illuminating Engineering 44,* 201-3 (Apr. 1949).

Deterioration of materials exposed to sunlight depends on intensity and spectral-distribution of the light, duration of exposure, and sometimes variations of intensity, temperature, and humidity. Fading of dyed textiles occurs with light of all wavelengths shorter than 6000 A. (orange-red), but the shorter wavelengths, especially 3000-4000 A. (ultraviolet) are most destructive. Further, the sensitivity of materials to different wavelengths is different, making it necessary to duplicate the energy distribution of sunlight closely for an all-purpose test source. Such a source is the combination of equal numbers of water-cooled 1000-watt AH-6 mercury lamps and 500-watt tungsten-filament lamps, which duplicates sunlight well except in the red and infra-red. Life

of the AH-6 lamp is short, but this source is not too expensive for many accelerated tests on textiles. If the ultraviolet region is most effective in fading a material, sunlamps, carbon arcs, or germicidal lamps may be used for accelerated tests. Germicidal lamps give especially severe fading.

Photographic aids to the textile industry. Melvin Siegel, Jean Ribbon Mills, Inc. *Am. Dyestuff Reptr. 38,* 268-73 (Mar. 21, 1949).

This is a discussion of high-speed motion pictures, high-speed still photography, intermittent, infrared, and ultra-violet photography, electron micrographs, and x-ray diffraction as applied to the study of textile operations and problems.

Pneumatic measurement of cross-sectional variations in textile slivers and insulated wire. H. Barrell & W. L. Buxton, Natl. Physics Lab. (England). *J. Sci. Instruments 26,* 105-8 (Mar. 1949).

A standard type of air controller associated with simple measuring units is used to determine variations in the cross-sectional area of materials in thread or wire form. The materials are drawn through a pair of orifices set in opposite faces of a small chamber connected to the controller. Variations in the cross-sectional area cause alterations in the resistance to escape of air from the controller which are registered as pressure changes on a water manometer. The apparatus should be calibrated with specimens having the same average qualities, either of fiber diameter or surface condition, as those of the material to be measured.

Rope tension measuring device. Daniel D. Symmes (to The Am. Steel & Wire Co.). USP 2 436 459, Feb. 24, 1948.

A rope tension measuring device comprises a sheave adapted to engage a rope the tension of which is to be measured, a motion multiplying lever system including a bell crank, a lever pivoted intermediate its length, a link connecting the long arm of the bell crank to one end of the lever, the lever being substantially parallel with the long arm of the bell crank, the sheave being pivoted on the short arm of the bell crank, a fulcrumed cam sector, a flexible band having one end attached to the cam sector and the other end to the free end of the lever, a weighted pendulum connected with the sector to apply force to the band and to provide an increasing force with increasing displacement, and means for indicating the amount of displacement of the sector.

Spectrographic study of treated textiles. D. P. Norman, W. W. A. Johnson & N. S. Johnson, New England Spectrochemical Lab. *Am. Dyestuff Reptr. 37*, 838-48 (Dec. 13, 1948).

Samples of textile materials can be studied spectrographically by placing them directly on the electrodes of a discharge tube (in the form of a swatch of fabric or a wad of fibers) and subjecting them to the action of a high-current-density electric discharge. The spectra emitted by the molecular fragments of the textile are directly related to the treatment received by the original sample. Experimental details are given and the equipment used is described and illustrated. This technique is of value in determining the effects of new finishes on fabrics, in determining the chemical action of detergents on fibers, and the chemical changes produced in fibers by thermal and other setting processes. It might also prove that a complex new product is sufficiently different from existing products to be patentable.

Tensile testing instrument. Anon. *Textile Age 13*, 68-70 (Mar. 1949).

The Instron tensile tester uses an electronic weighing system based on the electric strain gauge principle for detecting and recording the load applied to a sample. Accurate load-elongation measurements of textile materials may be made on this machine whose full scale load range extends from 2 g up to 5,000 lbs.

Testing apparatus for the evaluation of fire-resistant textiles. B. C. Rowley & M. Sonnino, Am. Cyanamid Co. *Am. Dyestuff Reptr. 38*, 201-4 (Mar. 7, 1949).

This is an illustrated description of an apparatus designed and constructed for use by Am. Cyanamid Co. laboratories in the evaluation of fire resistant materials. In essence, the apparatus was designed to assure proper exposure conditions—e.g., for automatically giving standard sample location, standard flame height and duration, and proper shielding. At the present time, the apparatus is undergoing comparative tests with the latest AATCC unit for the evaluation of fire-resistant textiles.

Universal wear tester for textiles. Anon. *Textile Industries 113*, 214 (Apr. 1949).

A new textile wear tester, the Stoll-Quartermaster Universal Wear Tester, can be used to produce 3 major actions of fabric abrasion: flat, edge, and flex abrasion. Quantitative determinations of abrasion resistance can be obtained by this tester

which is claimed to give reproducible results. (See also TTD: *6*, 408).

TEXTILE MILLS H

Advance textile production through electronics. Anon. *Am. Wool Cotton Reptr. 63*, 14-16 (Mar. 31, 1949).

A discussion on electronic instruments used in the manufacture of textiles is given, and the applications of anti-friction bearings to textiles is described.

Air conditioning and humidity control. Anon. *Am. Wool Cotton Reptr. 63*, 11-12 (Jan. 27, 1949).

Answers to the 6 questions on weaving, discussed at the fall meeting of the Textile Operating Executives of Georgia, are reported. Subjects include training fixers on high speed looms; stripping quills; cleaning weave rooms; and air conditioning, refrigeration, and humidity in weaving.

AIR CONDITIONING IN TEXTILE MILLS; THE CASE FOR TEMPERATURE AND HUMIDITY CONTROL TO PROVIDE COMFORT, HEALTH, SAFETY AND OPTIMUM PRODUCTION. New York, Textile Workers Union of America, CIO, 1948. 60 p.; Price: 50¢.

This study was prepared by the Research Department of the Textile Workers Union of America, CIO. Accompanying it is a model bill for state legislatures to expedite the adoption of this program and to bring laggards into line. It also contains a report of the action taken on this proposal by the union at its convention in Atlantic City, N. J. on April 28, 1948.—*Foreword.*

Anti-friction bearings pay dividends on textile machinery. Carl A. Berg, Fafnir Bearing Co. *Lubrication Engineering 5*, 69 (Apr. 1949).

This abstract of a paper to be presented at the Am. Society of Lubrication Engineers convention describes the increasing acceptance of antifriction bearings in the textile industry and the dependence of these bearings on proper lubrication. Use of correctly designed bearings and lubricants has led to lower maintenance and power costs, lower down-time, less contamination of yarn and woven goods, and increased speeds. With ball and roller bearings and high speeds, 2 unsolved problems are still under attack: friction oxidation or "fretting corrosion", as associated with oscillatory motion, and the "drying" of certain synthetic lubricants at high temperatures.

Bachmann Uxbridge Worsted Co. Anon. *Textile Age 13*, 53-8, 60, 64, 66, 68, 70 (Feb. 1949).

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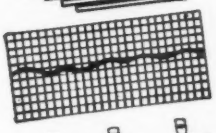

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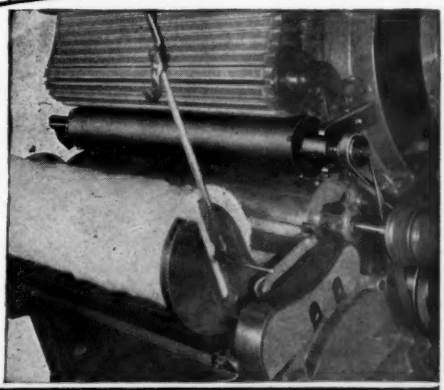

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The modernization of an old woolen mill is described, including machinery developments and spacing, mill transformation, and air condtioning. Floor plans of the 3 floors of the mill are given.

Bottle oilers reduce lubricant costs. Anon. *Textile Industries 113,* 136 (Feb. 1949).

Bottle oilers for lubricating bearings on textile machinery give a saving in lubricants and labor and eliminate the likelihood of lubricants getting on fabrics, machinery or floors.

Canvas material reduces pull threads. Anon. *Textile Industries 113,* 183, 185 (Feb. 1949).

A vinyl treated canvas, "Glosstex," is being used on such handling equipment as baskets, trucks, mobile shelves, and work tables. "Glosstex" has a smooth, glossy surface that will not snag hosiery. It is impervious to oil and grease, will not absorb water, dirt, or dyes, is washable, etc.

Centralized lubrication on tricot machines increases yield, cuts costs. Anon. *Textile Industries 113,* 175, 177 (Feb. 1949).

The Centromatic lubricating system provides a lubricant injector for each bearing of a tricot knitting machine by a copper tubing, supplied with lubricant through a single supply line. The system gives uninterrupted and increased production, improvement in product quality, and savings in lubricant, labor, power and maintenance costs.

Cloth guider. Anon. *Textile Age 13,* 62-3 (Jan. 1949).

A brief note on a new precision automatic cloth guider that controls the lateral movement of cloth within very close limits is given.

Cloth spreader solves labor problem. Anon. *Textile Industries 113,* 115 (Feb. 1949).

The CRA Electromatic, a motor driven cloth spreader, eliminates manual handling of heavy rolls of cloth in folding industrial fabrics. The machine is electrically operated, deriving its power from an overhead trolley.

Dry duct type air change system. Horace L. Pratt. *Textile Industries 113,* 157, 159, 161, 163 (Feb. 1949).

The dry duct air changing system consists of individual units with a fan, mixing chamber drawing air from a window, a duct with suitable outlets, a series of atomizer heads over the duct outlets, and an automatic control system. Installation of the system (at Columbia Mills) is described, and the cleaning and maintenance of the system is discussed.

Dry extinguishers reduce damage. Anon. *Textile Industries 113,* 120-1 (Feb. 1949).

Dry chemical fire extinguishers are reported to reduce fire damage in opener and picker rooms.

Efficient lubrication program reduces maintenance costs. S. H. Boyer, Wisteria Hosiery Mills. *Textile Industries 113,* 149, 151 (Mar. 1949).

A great deal depends on proper lubrication and maintenance for efficient operation. Lubrication charts and schedules should be prepared, storage drums and cans should be kept free from contamination, and proper application methods should be practiced.

Electrical progress in textile industry. F. D. Snyder, Westinghouse Electric Corp. *Am. Wool Cotton Reptr. 63,* 13-14, 45, 47, 49-50 (Jan. 27, 1949).

See TTD: *6,* 156.

Electrostatic air cleaners. C. H. McWhirter & R. P. Posey, Westinghouse Electric Corp. *Textile Industries 113,* 103-6 (Mar. 1949).

Electrostatic precipitators work on the principle of placing an electric charge on air borne particles and then depositing them on an oppositely charged surface. The Westinghouse precipitator, the Pretron, consists of 3 essential elements: the ionizer, the collector cell, and the power pack, which are described. Cleaning the Precipitron is also discussed. The application of these air cleaners in the textile industry are discussed with particular note to their usefulness in drying, lint removal, and bacteria removal.

Employees and products benefit by use of evaporative cooling system. Anon. *Textile Industries 113,* 127 (Feb. 1949).

An evaporative cooling system consisting of a humidifier, recirculating water pump, supply air fan, and the distributing duct work is claimed to improve production and quality, maintain constant humidity, and improve working conditions.

Engineered color ups mill output. Hoyes Quinn, Pittsburgh Plate Glass Co. *Am. Wool Cotton Reptr. 63,* 11, 40-1 (Mar. 31, 1949).

Color dynamics together with correct illumination eliminates eye fatigue and accidents, increases quality and production, increases illumination efficiency, and gives savings in maintenance and care of machinery. Critical parts of machinery are brought into focus and ceilings are moved upward, walls outward.

Floor finish resists wear of heavy traffic. Anon.

Textile Industries 113, 145 (Feb. 1949).

Lastincote is a penetrating sealer for floors with a surface finish which dries to a hard brilliant luster. It gives a surface that is easy to clean and maintain and is not affected by alkali soaps or many acid solutions.

Fluid drives for textile machinery. Anon. *Textile Industries 113*, 97-100 (Mar. 1949).

Fluid drives are discussed with details of the design of the drive, constant speed and variable speed types, and performance. Application of fluid drives in carding and spinning are also described.

Foam blankets spilled benzene. C. L. Jones. *Chem. Eng. 56*, 94-6 (Apr. 1949).

Where flammable solvents are likely to be spilled, a soybean-base foam has been found by the Hercules Powder Co. to be effective in preventing ignition. The foam is formed when a special solution is forced from marine nozzles a few inches above the floor. Within 4½ min. from the time of spillage or fire, the solvent is covered with foam.

Frosted lamps provide better lighting. Anon. *Textile Industries 113*, 112 (Feb. 1949).

The replacement of clear lamps covered by large translucent white globes with frosted lamps is claimed to eliminate cleaning, increase illumination, and make replacement of the lamps easier.

Glass blocks improve light distribution. Anon. *Textile Industries 113*, 177 (Feb. 1949).

Glass block not only provides improved light distribution; it also lowers air conditioning costs due to its insulation value, and it provides a completely sealed wall with no dirt infiltration.

Glass blocks reduce maintenance. Anon. *Textile Industries 113*, 131 (Feb. 1949).

Glass blocks will reduce maintenance costs of conventional windows since they reduce condensation, are easy to clean, require no painting, and eliminate breakage.

Handling problem solved by truck-haul. Anon. *Textile Industries 113*, 136 (Feb. 1949).

The problem of moving material up a short incline was solved in a mill (Kenyon Finishing Co.) by installing a Link-Belt chain-type truck haul, consisting of a power-operated endless conveyor chain riding in a steel channel track.

Heat exchangers pay dividends. Hunter Hughes. *Textile Industries 113*, 113-18 (Apr. 1949).

A heat exchanger designed to remove heat from

hot, contaminated water and to add that heat to fresh water can result in tremendous savings in dyeing and finishing plants. An actual installation will reclaim about 70% of the heat, depending on the quantity and temperature of the waters, their rate of flow, and the tube material used. Heat recovery equipment is more easily adapted to continuous flow of hot waste and cold fresh water. The calculation of savings from the use of heat exchangers is discussed.

High pressure condensate return system increases production, saves fuel. Anon. *Textile Industries 113*, 109 (Feb. 1949).

The use of a Cochrane C-B high-pressure condensate return system is reported to increase production on drying equipment, eliminate spotty dyeing of printed fabrics, assure uniform drying temperatures, etc. The system is actually a jet pump and a centrifugal pump incorporated in one unit.

Improvised mechanism solves problem of cleaning air conditioning plant. Anon. *Textile Industries 113*, 113 (Feb. 1949).

A brief description is given of a supplementary mechanical unit for cleaning the slime from the eliminator plates of an air-wash unit. This mechanism may also be used to clean and deodorize walls and ceilings of the fan room and to strip paint.

Industrial vision programs. Anon. *Textile Industries 113*, 101-2, 209 (Mar. 1949).

A program for giving eye tests to employees and applicants for jobs will result in reduced accidents, increased production, decreased waste, lower insurance cost, less absenteeism, etc.

Lighting of a textile finished goods perch. Anon. *Illuminating Engineering 44*, 167-8 (Mar. 1949).

This installation, at the Bachmann Uxbridge Worsted Corp., Uxbridge, Mass., provides illumination of propert quantity, quality, and color for easy and accurate final examination of finished worsted and woolen textiles. The cloth passes over a nearly vertical perch-board for inspection, and the illumination, of 350-400 footcandles, is provided from behind the inspector by a bank of ten 40-watt 6500°K daylight fluorescent lamps in twin-lamp Alzak reflectors. Room illumination of 40 footcandles comes from continuous rows of 40-watt 3500°K fluorescents at ceiling level. This report contains a photograph and 2 drawings of the installation, and is distributed by the Committee on Publications of the Illuminating Engineering Society, 51 Madison Ave., New York 10, N. Y. as A.I.A. File No. 31 f 13.

Lint arrester. Anon. *Textile Age 13,* 65-6 (Jan. 1949).

The Airmat lint arrester, a dry type lint collector for lint and dust control in textile mills, is briefly noted.

Lubrication of textile equipment. John R. Crotty, Crompton & Knowles Loom Works. *Lubrication Engineering 5,* 71-4 (Apr. 1949).

In the late thirties, Crompton and Knowles investigated possible specifications for the purchase of loom lubricants. Chemical analysis, flash, fire, and viscosity tests proved to have little value, while friction, film strength, wear, and loom tests showed compounded oils to be superior. Unfortunately, compounded oils had tendencies toward separation and clogging; therefore, highly refined straight mineral oils were selected from the welter of varied recommendations of suppliers. Specifications were drawn up for two oils and two greases. The accompanying recommendations suggested compounded oils for hand-lubricated parts. Since overlubrication frequently shortens lubricant life and promotes fabric contamination, a lubrication schedule was suggested and centralization of responsibility for lubrication in one man was recommended. Increasing loom speeds and growing demand for protection of the fabrics, as well as other problems, led to a review of loom lubrication in 1948. It was found that over 500 lubricant additives were now available for controlling oxidation, corrosion, viscosity, pour point, film strength, rust protection, and foaming. As they are required in very small quantities and must be carefully matched to both composition and use of the lubricant, selection of these additives is the task of highly experienced specialists. As a result, Crompton and Knowles abandoned purchase specifications for the recommendation that oils and greases be purchased on performance characteristics, especially factors influencing production, maintenance, power, and cost as determined in the user's mill, and on the seller's specific performance guarantee.

Machine cleaning time reduced 50%. Anon. *Textile Industries 113,* 185 (Feb. 1949).

Compressed air or a portable electric blower makes it possible to cut the cleaning time in removing lint from knitting machines.

Machine saves labor and floor space in cloth cutting operation. Anon. *Textile Industries 113,* 185 (Feb. 1949).

The Alfa Type FF cutting and stacking machine is reported to eliminate waste, eliminate all cutting tables, make the operation a continuous one, and increase available floor space.

Method and apparatus for electrostatically separating particles having different electrical properties. Thos. J. Masse. USP 2 445 229, July 13, 1948.

This invention provides a method of separating fabric fragments from a mixture of disintegrated rubber and fabric which comprises moving the mixture on a supporting member into a high tension electrostatic field maintained between a repelling electrode and a superposed attracting electrode having a face of dielectric material, so maintaining the depth and strength of the field that fabric fragments are lifted from the mixture to form a mass of coherent fabric particles in contact with the face and with the residue of the mixture at the upper and lower extremities of the mass, continuing the movement of the residue on the member through the field and thereby dragging the mass of fabric fragments along the face to a zone of separation across the path of the mass, and suctionally removing fabric fragments from the mass in the zone.

Motor connection reduces fire hazard. Anon. *Textile Industries 113,* 125 (Feb. 1949).

The use of Type S. O. cord, a multi-conductor cable having a synthetic, oil-resistant outer jacket, as connections at textile motors gives greater fire safety, less maintenance, is vibration-proof and moistureproof.

New Deering, Milliken plant equipped for complete overhead handling. Geo. Ladd. *Textile Age 13,* 75-7 (Feb. 1949).

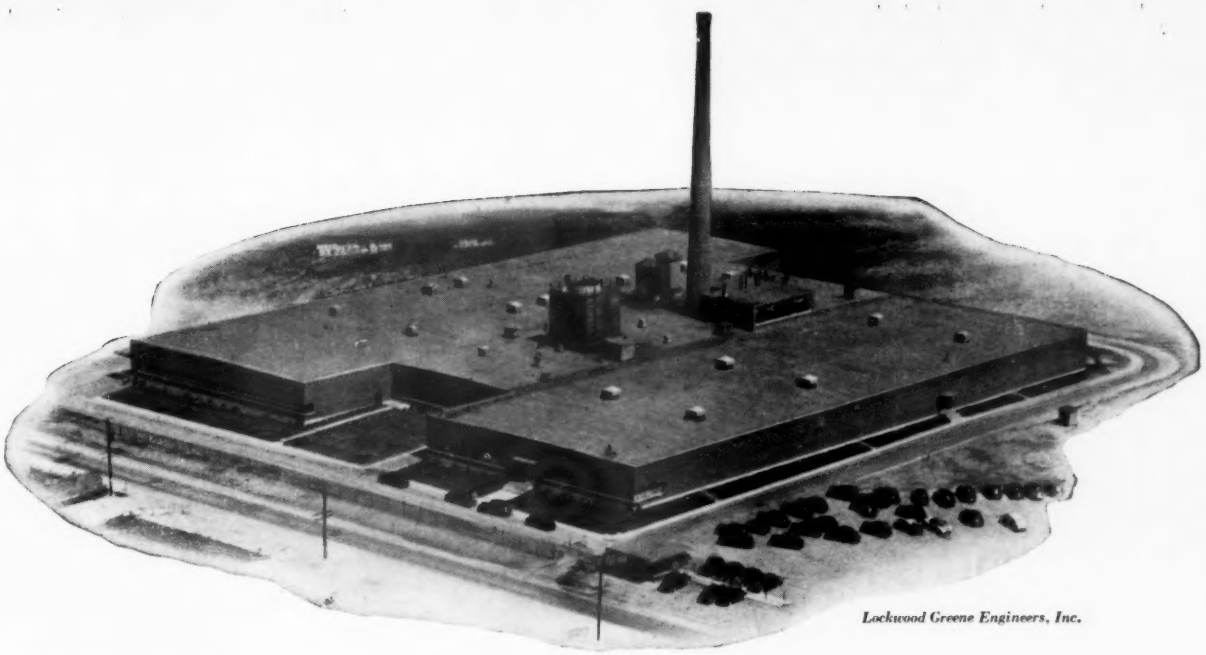
An illustrated description is given of an overhead mechanical handling system for handling filled and empty beams in the production of rayon tire fabric. Utmost efficiency and safety is obtained by the use of this system.

One fork truck does 2 jobs in finishing plant. Anon. *Textile Industries 113,* 143 (Feb. 1949).

A fork lift truck is used for storing bags and for supplying bags to the dyeing department (at Hanes Dye & Finishing Co.). Three times the number of bales may be stored in a given area by using the truck than when manually handled.

One-shot lubrication cuts maintenance. Anon. *Textile Industries 113,* 141 (Feb. 1949).

One-shot lubricating systems cut maintenance costs and oily yarn and eliminate burned out bearings.



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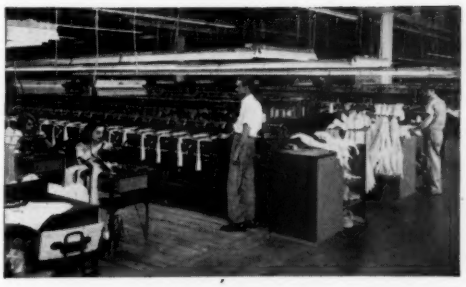

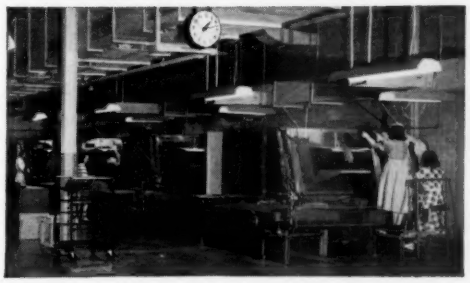

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Overhead beam handling cuts mill operating costs. Carl L. Peterson, Cleveland Crane & Engineering Co. *Am. Wool Cotton Reptr. 63,* 13-14, 58 (Mar. 10, 1949).

Typical overhead beam handling installations are briefly described as examples of efficient methods of handling, storing, and weighing beams. Space, time, and costs are saved by these installations which also simplify and facilitate the work.

Planning and construction of modern full-fashioned hosiery mill. III-VI. Saml. B. Lincoln, Lockwood-Greene Engineers, Inc. *Textile Age 13,* 34, 36, 38-9, 42-3 (Jan. 1949); 32, 34, 39, 42 (Feb. 1949); 32, 34, 39, 42, 44 (Mar. 1949); 75-6, 78-80 (Apr. 1949).

III—The plant layout in the construction of a modern hosiery mill is discussed with illustrative sketches of 2 hosiery mills given. Details for the installation of knitting machines are also discussed. IV—The materials of construction used for exterior and interior walls, partitions, roof decks, windows, insulation, and floors for full-fashioned hosiery mills are discussed. V—The building service equipment, fire protection, water supply, boiler plant equipment, lighting, and ventilation of the dye house and preboarding department are discussed. VI—Exact and continuous control of temperature and humidity by a year-round air conditioning system for a full-fashioned hosiery mill are discussed and requirements are given for knitting, boarding, preboarding, looping and seaming, dyeing, and finishing rooms. (For Parts I-II see TTD: *6,* 244).

Platen on hand truck simplifies baling. Anon. *Textile Industries 113,* 117-18 (Mar. 1949).

By putting wheels on the bottom platens of the baling press, it is possible to load goods on the platen in the cloth room, pull it to the press on its own wheels, bale it without unloading, and take the bale to storage on the same truck. Handling time is thus saved and the physical work of baling is reduced.

Pot spinning mill nears completion. Anon. *Am. Wool Cotton Reptr. 63,* 33, 229 (Feb. 10, 1949).

A description of a new windowless, air-conditioned pot spinning mill for viscose rayon (Beaunit Mills) is given.

Power transmission improved with welded frames. Wm. C. Reeden, Phoenix Hosiery Co. *Industry & Power 56,* 99-100 (Apr. 1949).

Frames of welded angle iron were constructed

which served as support for both machines and line shafts. The frames were large enough to hold 12 machines in line and sufficient room was left in the center of the line for the motor and drive unit. This arrangement reduced hazards to operators caused by broken belts, etc., facilitated maintenance of the belts and drive units, and permitted more efficient cleaning beneath the entire unit.

QUALITY CONTROL. Norbert L. Enrick. New York, The Industrial Press, 1948. 122 p.; Price: $3.00.

This manual of quality control procedure (the improved methods of inspection of a manufactured product) is written to be practicable and usable, with emphasis on clarity of directions and simplicity of methods . . . the preferred method in modern inspection, it is stated in the foreword to the volume, is statistical quality control, which was first developed by the Bell Telephone Laboratories and Western Electric and was recommended as having "contributed important reductions in costs and to substantial improvements of quality in the Bell System." . . . This volume is designed for those who do not want to be bothered with higher mathematics but would like to have statistical quality control explained in generally understandable terms, in order to make it a working tool in their plant. The author has confined himself to the essential methods and has purposely omitted all unnecessary refinements and formulas. Elementary arithmetic and common sense are its only prerequisites.—*Can. Textile J.*

Soluble textile lubricants. Anon. *Am. Wool Cotton Reptr. 63,* 14 (Apr. 13, 1949).

A wide range of soft and hard water-soluble waxes may be produced from ethylene glycol. When these waxes are used as lubricants for textile machinery, it is found that accidental spots on fabrics are soluble in water and can easily be washed from the cloth.

Stains on wool fabrics are costly. Wm. J. Crofts. *Textile Industries 113,* 119-21 (Apr. 1949).

Causes of stains on woolen fabrics and suggestions for preventing stains and reducing seconds due to them are discussed.

Strobotac boosts efficiency in woolen and synthetic mills. Geo. Ransom. *Textile Age 13,* 7, 10, 14, 16, 20 (Feb. 1949).

The Strobotac and its operation are described in detail. It is being used for the study and the observation of fast moving machinery and for the maintenance of such equipment. Study of yarn

movement can also be accomplished by the use of this instrument, and it can be used in the place of a tachometer. The Strobotac has led to reductions in production costs, improvements in quality output, and fewer 'seconds."

Temperature and humidity control at D. T. Co.'s Mount Royal mill. P. M. Gillespie, Dominion Textile Co. Ltd. *Can Textile J. 66,* 48-50 (Jan. 7, 1949).

Features of the air conditioning system installed in a cotton spinning and weaving mill are described briefly.

Time saved in moving heavy mechinery. Anon. *Textile Industries 113,* 107-8 (Feb, 1949).

By using small hydraulic jacks and wooden frames equipped with casters, heavy textile machinery, such as slubbers, speeders, and spinning frames may be moved with ease.

Tomorrow's mill a working paradise. Romeo Guest, C. M. Guest & Sons. *Am. Wool Cotton Reptr. 63,* 31, 203, 205 (Feb. 10, 1949).

Features of the mill of tomorrow including construction, acoustical treatment, material handling devices, controlled lighting, and refrigeration are discussed. These features will make the worker and the machinery more efficient and will aid in the production of more uniform and better quality goods.

Unit heater features easy maintenance. Anon. *Textile Industries 113,* 139, 141 (Feb. 1949).

It is reported that the Thermolier unit heater saves cleaning time and increases efficiency for heating distribution.

Use of scotch tape reduces waste. Anon. *Textile Industries 113,* 108 (Feb. 1949).

Pressure sensitive Scotch textile tape has been found to increase production time and quality and to reduce waste material. It is being used to hold ends of warp threads in warping and slashing, to start cloth on shells of a "Simpson" winder, to seal outer wraps of warps, etc.

Zephyr Textiles Ltd. Anon. *Whitin Rev. 16,* 1-13 (Feb. 1949).

This is an illustrated description of the plant and equipment used in manufacturing straight worsted yarns and blended yarns. The American System is used. Plant construction features one-story construction which improves plant efficiency by reducing transportation and minimizing movement of stock. The superintendent's office is situated in the center of the building and is elevated

sufficiently to allow constant supervision of all parts of the plant from one point.

CHEMISTRY AND PHYSICS OF TEXTILE MATERIALS I

Adsorption and desorption of water by nylon at 25°C. E. A. Hutton & Joan Gartside. *J. Textile Inst. 40,* T170-T174 (Mar. 1949).

The adsorption and desorption isotherms for nylon were determined at 25°C.; the curves show a small, but definite hysteresis. A value of approximately 8.70% was found for the regain at saturation. The adsorptive capacity of nylon decreases with increasing temperature of drying but subsequent saturation with water vapor restores the normal affinity for water either completely or to a large extent, depending on the drying temperature.

Allworden's reaction. Joel Lindberg, Swedish Inst. for Textile Research. *Textile Research J. 19,* 43-5 (Jan. 1949).

When virgin wool is treated with chlorine water, bubbles appear at the surface along the fibers. When the wool has been treated with alkali, the bubbles fail to appear. This phenomenon, known as "Allworden's reaction," has been described as an indication of alkaline damage to wool, and the formation of the bubbles has been shown to be connected with the degradation of a protein in the fiber by the chlorine. A Brownian movement can be seen inside the bubble, thus indicating the presence of a liquid substance. The bubble or sac can be punctured by means of a microscope needle; this fact has led to the assumption that the forming of the sac is due to a semi-permeable membrane, which is kept expanded by osmotic pressure. In work at the Swedish Institute for Textile Research, the membranes were studied in the electron microscope. It was assumed that they formed a skin on the wool surface since they are the first matter to be removed from the fibers. The membranes, which cannot be seen in an optical microscope, have a uniform thickness of about 100 Å. As a result of study of these membranes, it is concluded that a reaction depending upon a layer of a thickness of about 100 Å. is too sensitive to be used for practical purposes to estimate the damage to the wool. The surface membrane was also shown to be of great importance in the diffusion of dyes and other large molecules into the fibers.

Dynamic properties of filaments, yarns and cords at sonic frequencies. W. Jas. Lyon, Firestone

Tire & Rubber Co. *Textile Research J. 19,* 123-35 (Mar. 1949).

A brief description of the stretch-vibrometer developed at the Firestone Research Laboratories is given, and the theory of its operation is outlined. Described are new measurements made on the instrument verifying the previous conclusion that loss of energy to the apparatus is immeasurably small. Values of the dynamic stretch modulus E, coefficients of internal friction μ, and hysteretic energy losses of 15 samples of natural and synthetic textile materials, Fiberglas, and steel wire are given. Corresponding static values of moduli and energy losses are also given. The latter, it is shown, do not correlate with dynamic values, and hence cannot be regarded as predictive of dynamic behavior. The resonant frequencies at which measurements were made on these samples ranged from 65 to 360 cycles per second. The significance of the various measures which have been employed with the present data to express hysteretic losses is discussed, and it is shown that the quantity $\mu\omega_0/E$, while not rigidly constant, is confined to a narrow range of values in most samples. Further evidence is submitted generalizing the near-hyperbolic relationship bebetween μ and ω_0. Results of application of the method to the comparison of various tire-cord rayons are given. Measured on the stretch-vibrometer have been dynamic moduli ranging from 2.1×10^{10} (rubber thread to 226×10^{10} (steel wire) dynes/cm.^{2}, and internal-friction coefficients from 0.74×10^6 (rubber thread) to 25.7×10^6 (silk thread) poises.

Effect of the carboxyl groups in viscose sheet on the equilibrium absorption of Chrysophenine G. H. A. Standing & J. O. Warwicker. *J. Textile Inst. 40,* T175-T188 (Mar. 1949).

The equilibrium absorption of Chrysophenine G on viscose sheet was found to depend on the ratio of the mass of sheet to the volume of the dyebath. This effect, which was greatest when the concentration of sodium chloride in the dyebath was low, was due to the presence in the viscose sheet of acidic carboxyl groups which resulted in a lowering of the dyebath pH. For dyebaths in which the dye concentration and the total cation concentration of the inorganic electrolytes were maintained constant, the equilibrium absorption increased with decreasing dyebath pH and attained a fairly constant value at pHs between 3 and 2. The absorption isotherms of Chrysophenine on viscose sheet were measured under conditions such that the dyebath pHs were about 6. The theory of the effect of carboxyl groups in viscose

sheet on the equilibrium absorption is discussed. Tentative calculations based on this theory suggest that the number of carboxyl ions which affect the equilibrium absorption may be less than the total number of carboxyl groups in the viscose sheet.

Evaluation of the diffusion coefficient for chloroform in polystyrene from simple absorption experiments. J. Crank & G. S. Park. *Trans. Faraday Soc. 45,* Part 3, 240-9 (Mar. 1949).

Experimental data were obtained for the rates of sorption and desorption of chloroform by polystyrene. The results might be applied to a study of the dyeing of polystyrene fiber.

Experimental and theoretical study of the adsorption and swelling isotherms of human hair in water vapor. Howard J. White, Jr., Textile Research Inst. *Textile Research J. 19,* 136-51 (Mar. 1949).

Quantitative data on the length and diameter changes accompanying the adsorption of water by human hair are given as functions of the relative humidity. Data are also given on the effects of a load on the swelling isotherms. A theoretical treatment is proposed which accounts in a semiquantitative way for the swelling istoherms and the effects of tension as well as for the adsorption isotherm.

Formation and properties of three-dimensional polymers. I. Statistics of network polymers. J. Bardwell & C. A. Winkler. *Can. J. Res. 27B,* 116-27 (Feb. 1949).

This paper consists of a review of the theoretical treatments of the elastic and swelling properties of three-dimensional polymers and the predicted influence of network structure. An expression is obtained for the statistically most probable distribution of molecular weight for polymers terminated by chain transfer with a modifier. Depletion of the modifier did not lead to a large increase in molecular heterogeneity. Using the theory of gelation, the formation of an insoluble fraction and the development of cyclic structures when such polymers are subjected to cross-linking conditions, is treated.

Formation and properties of three-dimensional polymers. II. Network formation. J. Bardwell & C. A. Winkler. *Can. J. Res. 27B,* 128-38 (Feb. 1949).

This is the second of a series of 3 papers of interest in the synthesis of new fibers. The addition of potassium persulfate to a latex was found to lead to cross-linking with typical diene polymers

but had little effect on polystyrene. The rate of cross-linking was directly proportional to the persulfate concentration. The rate depended on the latex particle size and was affected by the presence of other reagents. The course of gelation supported the predictions of the statistical theory of random cross-linking.

Formation and properties of three-dimensional polymers. III. The effect of network structure of elastic properties. J. Bardwell & C. A. Winkler. *Can. J. Res. 27B,* 139-50 (Feb. 1949).

In this paper, the third of this series, experimental work is presented which shows that the tension exerted by a stretched polymer at a given temperature and elongation was found to be determined by the initial molecular weight and the concentration of cross-linkages. When the molecular weight was fixed, the retractive force was found to be approximately linear with the degree of cross-linking.

Investigation of textile wetting agents. Jens Jensen and E. Franck. *Tids. Textilteknik 7,* 21-9 (Feb. 1949); *in Danish.*

In communication No. 33. from the Danish Textile Research Institute the authors submit the results of an investigation on a number of textile wetting agents in which the Danish textile industry is interested. The report refers to measurements of surface tension as a valuable supplement to practical measurements of the wetting power, and various methods applied to such measurements are described. The 2nd part of the paper deals with the results obtained in practice by measurements of the wetting power according to the hydrometer method and according to Herbig's method as well as by measurements of the surface tension through the simplified drop weight method. The Herbig data for 14 products are given. Hydrometer graphs (distance hydrometer has sunk plotted against time) and surface tension graphs (surface tension plotted against concentration) are also given.

Investigations on cellulose reactions. VI-VII. Tore Timell, Kungl. Tekniska Högskolan. *Svensk Papperstidning 52,* 61-2, 63 (Feb. 1949); 107-8, 109-10, 111-12 (Mar. 1949); *in English.*

VI—This is a note on the formation of carboxymethyl—and sulphoethylcellulose. VII—The periodate method for estimating the amount of easily accessible material in cellulose. (For Parts IV see TTD: *6,* 86, 166).

Low temperature properties of textile materials. Ernest R. Kaswell, Fabric Research Laboratories, Inc. *Am. Dyestuff Reptr. 38,* 127-34 (Feb. 7, 1949).

High altitude flying as well as Arctic and Antarctic military operations require a knowledge of the performance of filamentous materials and other high polymers at temperatures as low as —70°F.

Mechanics of elastic performance of textile materials. II—The application of sonic techniques to the investigation of the effect of visco-elastic behavior upon stress-strain relationships in certain high polymers. Walter J. Hamburger. *Textile Research J. 18,* 705-43 (Dec. 1948).

A technique is developed for the quantitative evaluation of the deformation components of visco-elastic materials when these are subjected to tensile loading, for loads ranging from zero to rupture, under dynamic loading conditions, at constant rates of load, elongation, or strain for different magnitudes of constant rates of load, elongation, and strain. The technique serves not only to determine the mechanism of elastic performance of materials but also to quantitatively evaluate their performance characteristics as engineering materials. A sensitive and responsive instrument for the determination of the dynamic modulus of elasticity of materials under any and all loading conditions, such as those enumerated above, has been developed and is described. The effects of the visco-elastic behavior of high polymers upon their stress-strain relationships are investigated and discussed. For Part I see TTD: *5,* 447.

Moisture regain of silk. I. Adsorption and desorption of water by silk at 25°C. E. A. Hutton & Joan Gartside. *J. Textile Inst. 40,* T161-T169 (Mar. 1949).

The adsorption and desorption isotherms at 25°C were determined for Japanese, Chinese, and Italian silks, both in the gum and after degumming. The degummed silks have a lower regain than the corresponding silks in the gum at all humidities and also show less hysteresis between the adsorption and desorption isotherms. When degummed, the different kinds of silk adsorb water to the same, or nearly the same, extent but in the gum state the adsorption is greater for the Italian silk than for the Japanese and Chinese silks. Slightly lower values were found for the regain of "isoelectric" degummed Japanese silk than for the same silk before treatment. Approximate values for the regain of sericin have been deduced.

Petroleum chemicals in relation to the textile in-

dustry. E. S. Paice. *J. Soc. Dyers Colourists 64*, 237-45 (July, 1948).

This is a review of petroleum chemicals of importance to the textile industry. The properties and uses of these chemicals are discussed.

Polymerization of acetaldehyde at low temperatures. J. C. Bevington & R. G. W. Norrish. *Proc. Roy. Soc. (London) 196*, 363-78 (Apr. 7, 1949).

This is a study which should be of interest in research concerning the formation of various types of synthetic fibers and their stability. The kinetics of the acetaldehyde polymerization indicate that the active centers are long-lived and that, although various substances are strong inhibitors of the reaction there is no evidence of the need of a catalyst to initiate the polymerization. Traces of acetic acid were found to have a large effect on the properties of the polymer. It is suggested that the difference between the stabilities of various samples of polymer may be explained by differences in their acetic acid content.

PRINCIPLES OF HIGH-POLYMER THEORY AND PRACTICES Alois X. Schmidt & Charles A. Marlies. New York, McGraw-Hill Book Co., Inc. 754 p.; Price: $7.50.

This is an excellent and comprehensive text on the chemistry and physics of high polymers, with emphasis on fibers, plastics, rubbers, coatings, and adhesives. The presentation attempts to correlate the phenomena applying to these materials in order to provide a suitable background for further work involving high polymers. Much attention is given to structure, intermolecular forces, size and shape of molecules, rheology, and chemistry of the liquid and solid states. Although intended as a text for both undergraduate and graduate courses in high polymers, the subject matter requires a good grasp of physical chemistry, thermodynamics, mechanics, and physics and is therefore probably more suited to the graduate level of study. Chapter headings include introductory definitions and concepts; molecular forces; some special behavior and properties of high polymers, polymer formation and modification; structures of high polymers; solubility and molecular-weight relations; rheology; molding and manipulation; mechanical properties; electrical, thermal, and optical properties; fibers and fibrous products; rubbers; surface coatings; adhesives; and resin product development—phenolic resins. Many literature references, appendices of tables and charts, and a comprehensive index round out this valuable book.—*Indian Rubber World.*

Propagation of reaction chains in the polymerization of styrene. J. W. Menary, A. R. Ubbelohde, & M. J. Wright. *J. Chem. Soc. (London)*, 2232-40 (Dec. 1948).

This article should be of interest in the development of the styrene type of synthetic fibers. Styrene was polymerized in the presence of oxygen, nitrogen, hydrogen, and mixtures of oxygen with nitrogen and oxygen with hydrogen. The progressive changes of viscosity and density resulting from polymerization of samples were measured without unsealing the reaction vessel. A simple mathematical treatment is proposed, which combines the viscosity and density measurements, to give a measure of the molecular weight of the polymer being formed.

Small-angle x-ray scattering in various cellulose fibers and its relation to the micellar structure. A. N. J. Heyn. *Textile Research J. 19*, 163-72 (Mar. 1949).

The study of the molecular structure of cellulose fibers by x-rays has been concerned until very recently with diffraction of only relatively wide angles. Almost no work has been done on the diffraction and scattering of x-rays within very small angles adjacent to the primary beam. The only fact known was that such "small-angle scattering" is produced by ramie and viscose rayon. In the present study, the small-angle scattering by various cellulose fibers has been investigated and it has been found that the scattering by different fibers is completely different. The hypothesis that the small-angle scattering in cellulose fibers would be related to the micellar size and distance is substantiated by the fact that an experimental change of those distances results in a corersponding (inverse) change in the extent of the scattering. On this basis the difference in the scattering patterns of different fibers is explained as a difference in the size and distance of the cellulose micelles or crystallites. An orientation of crystallites is also expressed in the small-angle diffraction pattern giving rise to the interesting phenomenon of "cross" formation when the crystallites form an angle with the long axis of the fiber. The angle between the intersecting lines of the cross proved to be related to the pitch of the spiral of the crystallites in the fiber.

Some aspects of the photochemical degradation of nylon, silk, and viscose rayon. G. S. Egerton. College of Technology, Manchester (England). *Textile Research J. 18*, 659-69 (Nov. 1948).

The vat dyes that are particularly effective in increasing the photochemical degradation of nylon, silk, and viscose rayon are capable of increasing the degradation of undyed cotton that is simultaneously irradiated in their vicinity. The experiments took the form of irradiating a sheet of yarn composed of alternate dyed and undyed threads not in contact with one another. The dyed threads used included nylon, silk, and viscose yarns dyed with various vat dyes. Many of the dyed yarns have a considerable effect upon the degradation of adjacent undyed yarns of cotton or silk, but the same dyed yarns generally have only a small or negligible effect upon the degradation of undyed yarns of nylon or viscose rayon. These results are apparently due to the greater resistance of the latter textile materials to oxidation by the volatile agent (hydrogen peroxide), which is responsible for the "action at a distance." In some cases—for example, dyed nylon—there is evidence that although the volatile agent is produced by the dye in a relatively large amount it is not responsible for the major proportion of the degradation of the dyed yarn. The effect of humidity on the rate of photochemical degradation of textile materials dyed with active vat dyes appears to be closely related to the ease with which the textile fiber is oxidized by the volatile agent. These results are interpreted in terms of a theory in which the photochemical degradation of the textile material is represented as the result of oxidation by activated oxygen and/or hydrogen peroxide. The relative effectiveness of these 2 oxidation processes depends upon the particular experimental conditions and the nature of the textile fiber.

Water sorption and the poly-phase structure of cellulose fibers. John A. Howsmon, Am. Viscose Corp. *Textile Research J. 19,* 152-62 (Mar. 1949).

Many of the methods used to study the fine structure of cellulose are tedious and not suitable for routine use. In the present work, an equilibrium moisture regain method which can be carried out on a large scale with a high degree of accuracy has been developed. The method is illustrated by a wide variety of cellulose materials covering a wide range of moisture sorption capacity. The terms "accessibility" and "crystallinity" are discussed and possible errors arising from assumed equivalence of these terms are pointed out. A preliminary attempt to evaluate both accessibility and crystallinity of cellulose from moisture regain data has been made. This evaluation results in a proposed revision of the scale of reported crystal-

linities of various types of cellulose. The hydrolysis method for studying cellulose accessibility has been compared with moisture regain and x-ray diffraction methods. It is proposed that recrystallization of cellulose during hydrolysis is a determining factor in this method, and, therefore, that published data obtained from hydrolytic studies should be considered.

TEXTILE EDUCATION AND RESEARCH J

Cotton plans a research program. Leonard Smith. Natl. Cotton Council. *Am. Dyestuff Reptr. 37,* 866-70, 878 (Dec. 27, 1948).

This is a discussion of the work of The Natl. Cotton Council in promoting research on cotton. The work of the Southern Regional Research Laboratory is reviewed and other projects underway by other agencies are mentioned briefly.

Danish Flax Research Institute. Hans Jacobsen, Director. *Tids. Textilteknik 7,* 41-52 (Mar. 1949).

The Institute was established in Nov. 1945 by the Academy of the Technical Sciences in collaboration with the Joint Committee of the Danish Flax Industry. The purpose of the Institute is to do fundamental and applied research on the advancement of flax cultivation, processing and utilization, and to collect information on flax research in other countries. The facilities of the laboratory and its work are described. A list of the institute's publications is given.

THE FIRST FIVE YEARS, 1944-1949. Charlottesville, Va., Institute of Textile Technology, 1949. 31 p.; Gratis.

This is a review of the activities of the Institute of Textile Technology for the period 1944-1949. The Institute's work in education, research, and information is discussed in some detail.

INVENTORY OF THE RESOURCES OF THE UNITED STATES OF AMERICA FOR TEXTILE RESEARCH, DEVELOPMENT, EDUCATION AND TESTING. Comp. by the Technical Committee, The New York Board of Trade, Textile Section. [New York]. The New York Board of Trade, 1949. 7 p.; Gratis.

This inventory is in the form of an outline and lists institutions and organizations and their addresses.

Knitters suggest needed improvements in cotton yarns. Anon. *Textile Age 13,* 60, 62, 66, 70 (Apr. 1949).

A survey of the knitting industry by the Natl. Cotton Council reveals a need for improvements in cotton quality, expansion in cotton research, and advances in advertising and merchandising practices. (See also TTD: *6*, 124).

Laboratory function-service. John Middleton. *Textile Industries 113*, 103-7 (Apr. 1949).

The use of a laboratory as a service department in a mill in checking finished goods, intermediate processes, machinery, etc. is discussed. By using the laboratory to maximum advantage, a mill can increase production, reduce costs, and improve the quality of finished products.

PAPERS DELIVERED AT THE FIRST CANADIAN TEXTILE SEMINAR, HELD AT KINGSTON, ONT., ON SEPT. 17-18, 1948. Montreal, Que., The Textile Technical Federation of Canada, 1948.

By publishing in book-form all the papers delivered at the first all-Canadian Textile Seminar, sponsored by The Textile Technical Federation of Canada, which was held in Kingston, Ont., on September 17th-18th, and attended by about 300 representatives from all sections of the industry, the Federation has provided a volume that should, we believe, be of much interest and value to every member of the trade. The 29 papers delivered at the seminar, all of them written by Canadians and providing a wealth of technical data relating to domestic textile manufacturing, are published in full. In addition to pictures, diagrams and charts, biographical notes on each speaker appear in the volume.

Recent research on cotton properties at the Southern Regional Research Laboratory. Kyle Ward, Jr. *Am. Dyestuff Reptr. 38*, 122-6 (Feb. 7, 1948).

This is a review and discussion of the work of the Southern Regional Res. Lab. in its study of cotton properties.

Research is key to textile accomplishment. Edw. R. Schwarz, Mass. Inst. of Technology. *Am. Wool Cotton Reptr. 63*, 86-7 (Mar. 17, 1949); **Fundamental research—a necessity not a luxury.** *Can. Textile J. 66*, 48, 50 (Mar. 4, 1949).

Fundamental textile research, the liaison between pure science and applied research, is essential to the textile industry. It is through fundamental research that fabrics of near perfection for specific uses may be produced.

Research on flameproofing at Columbia. Anon. *Safety Eng. 97*, 62-3 (Mar. 1949).

A five-year project in the flameproofing of fabrics

is being set up at Columbia University under the joint sponsorship of the Quartermaster Corps and the Office of Naval Research. Directed especially toward flameproofing of clothing for military purposes, it will also deal with the fundamental principles involved. It will extend work done in 1943-45, and will be carried out in Columbia's Chandler Laboratories of chemical engineering under the direction of Dr. James M. Church. One possibility studied will be flameproofing by incorporating various agents into nylon and other fabrics, rather than treating them externally.

Scope of use-development work in the textile industry. H. A. Thomas, Courtaulds Ltd. *Can. Textile J. 66*, 48, 50, 51, 52 (Feb. 4, 1949); 50-2 (Feb. 18, 1949); 60, 62 (Mar. 18, 1949).

See TTD: *6*, 332.

SOME PRACTICAL APPLICATIONS OF RECENT RESEARCH ON WOOL. J. B. Speakman. Meddelanden Från Svenska Textilforskningsinstitutet, No. 7, 1948. [Proceedings of the Swedish Inst. for Textile Research]. 19 p.; *In English.*

See TTD: *5*, 150.

Textile research achievements of 1948. Julius B. Goldberg, J. P. Stevens & Co. *Papers Am. Assn. Textile Technologists 4*, 75-81 (Mar. 1949); *Am. Dyestuff Reptr. 38*, 140-3 (Feb. 7, 1949); Textile research in 1948. *Am. Wool Cotton Reptr. 63*, 81, 83, 85, 87, 89, 91, 93, 95 (Feb. 10, 1949).

See TTD: *6*, 420.

WOOL RESEARCH, 1918-1948: Volume 4—Carding. Torridon, Headingley, Leeds, Wool Industries Research Assn. 244 p.; Price: 21s.

All the experience of the Wool Industries Research Assn. is now being gathered together in one series of 11 volumes entitled "Wool Research 1918-1948." It is pointed out that this is not intended to be a series of text-books, but rather an account of the scientific investigation of wool and its processing. The decision of the W.I.R.A. to collate and condense the work of the last 30 years was prompted by the need to provide a large body of new members with an account of results, much of which had never been published elsewhere than in the Association's Bulletin and Technical Papers. The decision to make the work available to the public generally is to be commended. Volume 4, Carding, is the first of the series to be issued, and opens with a chapter, largely historical, dealing with the development of the carding engine. The

second chapter deals with one aspect of the work done by W.I.R.A. to throw light on what actually occurs during carding, by the use of cinematographic methods, a small experimental machine having been used for the purpose. The camera reveals what happens to the individual fibers as they come under the influence of the different rollers

under varying conditions. Incidentally, the large number of variable factors involved in carding make it necessary to carry out many tests before the effect of these factors can be isolated and investigated individually; the work described in chapter 8 reveals with what thoroughness this was done.—*Textile Recorder.*

How To Obtain Copies Of Patents

U. S. patents may be obtained from the U. S. Patent Office, Washington 25, D. C., at 25 cents per copy.

Foreign patents are available in photostatic copies from the U. S. Patent Office, Washington 25, D. C. Charges for photostats of foreign patents are based upon the number of pages in the patent.

German patent applications and other reports listed by PB report number may be obtained in microfilm or photostat from the Library of Congress, Photoduplication Service, Publication Board Project, Washington 25, D. C.

Canadian patents may be obtained from the Commissioner of Patents, Ottawa, Canada. An estimate of the cost of a patent should be obtained in advance of the order as patents are available only as manuscript or photostatic copies.

Abstracts of U. S. patents are prepared from copies of the patents. Abstracts of Australian patents are taken from *The Australian Official Journal of Patents, Trade Marks, and Designs.* Abstracts of Canadian patents are prepared from claims published in *The Canadian Patent Office Record.*

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